The Builder.

SATURDAY, MAY 26, 1855.

SOME of our metropolitan readers express themselves as anxious to be kept informed of the proceedings in respect of the proposed Bill to amend the Laws relating to the Construction of Buildings in the metropolis and its neighbourhood: nor is it strange that they should be so, seeing how much depends on obtaining a clear, sufficient, reasonable, and workable Act. The Builders' Society, at a special meeting on the 17th inst. came to the following resolutions:—

"1. That the duties of the district surveyor could not be as well fulfilled by any but competent professional men, and that the interests of the public could not be protected efficiently by any arrangement which would throw these duties on a less educated class of men.

2. That in the opinion of this society, the Court of Official Referees divested of any legal member, would be the best tribunal for appeal in such cases as could not be settled with the district surveyor.

3. That inasmuch as the only public matters that have to be regarded are *the safety of the public, as against insecure construction, and the spread of fire*, it is desirable that the stipulations of the Bill should be as few and short as possible, and avoid as far as may be all interference with internal structure and arrangement.

4. That the payment by fees to be paid by the person building is the most equitable method of meeting the expense of their superintendence.

5. That the scale of fees requires revision, as it appears that under the existing Act, 7 and 8 Vict. cap. 84, as well as by the new Bill, that the smaller classes of buildings pay a much higher rate in proportion as compared with those of a larger class; and

6. That the districts should be equalised so as to make them worth the attention of competent professional men."

In discussing the fifth resolution it was shown, by an analysis of the last Parliamentary Report (No. 83), "Metropolitan Buildings Bill," that out of every 100 buildings, seven were of the first rate, fourteen of the second, twenty-seven of the third, and fifty-two of the fourth rate; and that the fee chargeable under the existing Act on fourth-rate houses, viewed as a per centage on the value, was much greater than that chargeable on a first-rate. It ought not to be forgotten, however, in discussing this question, that the district surveyor has often more trouble in dealing with small houses than with large.

As to the payment of the district surveyor *by fees*, the Select Committee of the Commons have decided that it is to be so, and there is much to be said in favour of the mode. It is very desirable, nevertheless, that arrangements should be made in the Bill for the collection of these fees by a proper officer, so as to avoid bringing the builder and the surveyor into collision on that point. The difficulty of obtaining payment under the present Act is very great in many cases, and much time and attention is thus wasted, which should be otherwise employed.

Amongst the movements on the subject out of doors, we must mention that a deputation from the parish of St. Pancras had an interview with Sir William Molesworth on Saturday last, to point out certain clauses in the Bill as requiring revision, but found, as we said last week, that so many alterations had been made in the Bill, and were still pending, that discussion would be useless: they would be fighting giants already slain. Sir William Molesworth said the whole of the original clauses with respect to construction had been struck out of the Bill; that no decision had yet been come to by the select committee, and that it was impossible for him to state what rules would be inserted in the schedule of the Bill in the place of those which had been struck out. The deputation suggested, amongst other things, the propriety of introducing some limitation as to the time in which penalties might be recovered under the provisions of the Bill, and called attention to the annoyances which frequently arose in consequence of the Act rendering it necessary to call in the assistance and advice of a surveyor for trifling and immaterial improvements. Sir W. Molesworth stated, in reply, that there was considerable difficulty in drawing the line between various descriptions of works, and it would be necessary to have examiners to decide in some form as to what was really a material alteration. If the deputation would send him any amendments to the clause, he would give them his best consideration.

At Blackheath a meeting has been held, whereat it was resolved to lodge a petition against the Bill, and to oppose it by counsel if practicable. Until the amended Bill is printed, however, it is impossible to say what there is to object to.

The select committee did not meet on Tuesday, as at first arranged, but on Thursday, the 24th, when they determined on various other alterations, and adjourned till the next day. They will then probably adjourn over the holidays, so as to give time for the discussion out of doors of the Bill as it now stands.

In lieu of the recondite rules for determining the thickness of external and party walls, proposed in the original Bill, and set forth by us p. 205, *ante*, the following was at first substituted:—

"In cases where neither the height nor the length exceeds 36 feet, the thickness of every such wall at its base shall be 13 inches.

In cases where either the height or the length exceeds 36 feet, the thickness of every such wall at its base shall be determined by multiplying together the length and height of the wall, and dividing the product by 22 times the length of a diagonal line drawn from the top of the footings at one end to the top of the wall at the other end thereof; but if the length of any wall is less than one-half of its height, the thickness of such wall at its base shall be one-fiftieth part of the height of the wall; and no such wall as aforesaid shall at its base be less than 13 inches thick," &c.

Other suggestions were made, but what the committee will ultimately decide on we cannot yet say. It is proposed that the Bill, if passed, shall come into operation on the 1st of January, 1856. Nine-inch walls will probably be permitted for buildings covering a less area than 5 squares.

ON THE EMPLOYMENT OF PAINTED GLASS.*

IT is not my intention to enter into any antiquarian disquisition respecting the subject of glass painting, but, as briefly as I can, to call your attention to certain points connected with the practical application of the art. In so doing, it will be necessary for me to repeat much that I have often already repeated, but which I have less hesitation in doing since I find my views are now pretty generally sanctioned by persons to whose opinions I, as an amateur, feel bound to defer. Indeed, were it worth my while to inquire, it would be difficult to discover why the enunciation of such views should have exposed me to the wrath of a certain set of critics possessing unbounded admiration for the thirteenth century, and for everything connected with it. For if any one more than another has striven to vindicate the common sense of the mediæval artists, and those of this period in particular, it is myself. But as I know that these gentlemen are always ready to come round to views which have become popular, even in spite of their own opposition, and to claim them as their own, I shall not be deterred from again submitting my views to the judgment of practical men.

But there is another class of writers whose opinions are not to be so lightly passed over; for by the mere effect of reaction, if from no other cause, they certainly will gather strength as people get tired of mediævalism. I mean those, principally foreigners, who advocate the Munich school of glass painting.

It must be admitted that the German glass painters, as a body, surpass ours in nearly every artistic quality. This was painfully apparent to all unprejudiced eyes in the Exhibition of 1851. And I doubt if we could even now reckon half a dozen glass paintings, by native artists, which, in point of drawing and composition, can compare with the works at Munich or Cologne. I apprehend that this is attributable less to our present fondness for mediæval pursuits, than to the spirit in which we conduct them, though both no doubt have their influence.

Whether it is that the Gothic style of architecture is incapable of being adapted to the wants of modern civilization, or that we have been unable to find out its principles, certain it is, that the most successful specimens of modern Gothic are those which are the most faithful copies of old work,—a reflection which, united to the abundance of mediæval examples, has tended to reduce the practice of modern Gothic architecture, and of its accessorial arts, to a simple system of copying. I do not pretend to deny that, in this country, architecture, during the last 100 years, has been, for the most part, a system of copying. But there is this difference in copying the Classical and the Gothic styles,—that the one is the style of a sculptor, even in its most purely architectural parts, and is associated with ideas of the utmost perfection in all branches of accessorial embellishment, whilst the other is the style of a stonemason, even in its statues and reliefs, and is associated with ideas of art in its infancy, rather than in its mature development. Hence, the imitation of Classical architecture has always necessitated a degree of excellence in its accessories, such as pictures and the like, demanding from the critic some knowledge of the ordinary rules of art, and requiring artistic qualities in the designer; whilst the imitation of Gothic architecture has been the raising up of critics, to whom, knowing the men, we should hardly think of entrusting the selection of a tea-pot, and the conversion into artists of persons who, forty years ago, would have been laughed at for venturing to assume that title.

The Germans, on the contrary, at least as regards glass painting, under the able guidance of the late King of Bavaria, a man of refined and matured taste, seem to have regarded the art of the Middle Age in the same spirit as Sir Walter Scott regarded its literature,—as a mine full of ore, rich indeed, but which before it could be rendered available, required to be purged of its dross,—"the repulsive dryness of mere antiquity." A German writer thus expresses himself:—"How it is possible even to name the works of the old glass painters beside those of modern artists, far less to give them the preference, is to me inconceivable. That we should take all possible care of the old painted windows of our churches—that we should attribute to them a certain historical value as specimens of the beginnings of art—that the antiquary should rejoice over them,—all this I understand. But, when I hear of people falling into ecstasies at their beauty, it is really impossible for me to give them credit for candour. Form is entirely wanting in these old glass paintings: the drawing is monstrous, and composition, grouping, and perspective, cannot be looked for at all. Go and look at a window in the Cathedral of Ulm, or the Sebald's Church at Nuremberg, and you will not, for a quarter of an hour, be able even to make out the subject of the picture, or the relation of parts to each other. But it has been decreed, once for all, that the old glass paintings are very admirable. So, out of twenty visitors to the cathedral, nineteen make it a point of conscience to brighten up at the sight of them, and give utterance to half-suppressed exclamations of emotion and admiration. It is one of the many

* The following paper was read by Mr. Charles Winston, at the Architectural Museum, on the 21st inst.

conventional lies which we are accustomed nowadays to impose on ourselves and others, from various motives,—sometimes for the justification of our claims to refinement—sometimes from mere habit—sometimes from politeness—and sometimes (Heaven save the mark!) for the sake of morality and religion." I have heard precisely similar sentiments expressed at Munich. And there is no question but that there is a good deal of truth in them, and that it is to the practical carrying out of such sentiments, that the Munich school of glass painting owes much of its well-deserved popularity.

After this panegyric it may seem almost ungracious to except to the practice of the Munich school; and, indeed, such is my respect for the artists of that school, that I should not do so if I did not feel very sure of my ground.

The practice of this school to which I object is, the profuse employment of enamel colours.

I need hardly remind you, that there are three ways of producing a painting on glass;—the first, in which the local colours are obtained by using glass coloured in its manufacture, and by means of the yellow stain; the outlines and shadows only being painted with an enamel colour;—the second, in which the local colours are produced on white glass, by the application of enamel colours, and the yellow stain;—the third, in which both the former methods are combined.

This last is the method pursued by the Munich school. It has over the first method the advantage of affording greater facilities for the application of colour, and of largely increasing the power of graduating the colour, which, in glass painting, with every help, has not nearly so wide a range as that of fresco painting! and, of course, is very limited indeed, in comparison with the scale of colouring in oil painting, or water-colour painting. But it is attended with this advantage, that all glass paintings so executed have a deadness of effect, proportionate to the extent to which the glass has been overlaid with the enamel. Hence it is that the Munich glass paintings, collectively, want that brilliant vivacity which all old glass paintings, up to the middle of the sixteenth century, possess, and which often makes these old works superior in general effect to the modern, though they are in many other respects so inferior to them. This defect is still more apparent in the works of those artists who have exaggerated the practice of the German school. I have noticed that interiors, lighted by such works, as the church of St. Germain l'Auxerrois, at Paris, have none of that dim, subdued light which is so charming at Chartres and elsewhere, but a sort of dull obscurity, as if they were filled with smoke or dust; the impression produced upon the eye by the glass, no doubt, being the cause of the apparent difference in the gloom.

The German artists, I am aware, justify the use of enamel colours, as an expedient to make up for the flimsiness of the ordinary material, and which in this respect, as they assert, contrasts unfavourably with the old, even with that of the fifteenth and sixteenth centuries; a discovery which, being perfectly true, is perhaps, on that very account, as yet unrecognised by our critics; for, only the other day, I saw it asserted, as a profound personal conviction, that there was no difference whatever between the texture of old glass and new. But, I cannot help thinking that the ease with which enamel colour can be applied has tempted the Germans rather to transgress the limits of glass painting, and to seek to impart to their works a degree of finish and refinement which contrasts but unfavourably with the harsh lines produced by the lead work and saddle-bars, without which, as you all know, no glass painting, except it be of very small dimensions, can be constructed. I think that this was exemplified in the "Dante window," in the Exhibition of 1851, a work which certainly eclipsed everything else there. It is true that, with some other really fine things, it escaped all notice in the jury's report; but then, as a foreign artist remarked to me, considering the way in which they accorded their medals and praises, this was the greatest compliment that they could have conferred. I repeatedly examined this window, which was executed in the manner of the German school, with feelings of admiration at the masterly way in which technical difficulties, of no ordinary nature, had been overcome; but I felt, more strongly than I can now express, the contrast between the exquisite softness and finish of the painting and the cutting harsh lines to which I have alluded.

It would be well perhaps if the glass-painters of this country could succeed in painting glass as badly as the Germans do. But as we are beginners, and certainly have nothing to unlearn in the way of art, there seems no reason why we should not at least endeavour to avoid some of the errors into which they have fallen, by adopting a different practice in the outset; especially as a difficulty with which they have had to contend has been overcome, by reviving the manufacture of the ancient material. As I have had something to do with this revival, I shall not allude to it further than to state, that if Mr. Powell, to whom the receipts have been given in consideration of the great facilities he afforded of carrying on the experiments at his works, does not continue to make glass like the old, of all dates, it is his own fault entirely, since he has made from the receipts glass exactly like the old, and which, it is only fair to tell you, is very different from the spurious imitations of it which, now that the example has been set them, other glass-makers have brought into the market.

I would strongly advocate the universal adoption of the mosaic method of glass-painting, in which, as I have said before, coloured glass is used instead of enamel. And I certainly would not advise any attempt to be made to render glass-paintings much, if at all, more pictorial than the best glass-paintings of the sixteenth century are. And when I speak of the best works of that period, I will put first and foremost the windows of the Chapel of the Miraculous Sacrament, in Brussels Cathedral; which for power and effect, and as evincing a thorough knowledge of the material in its treatment, far surpass any other glass-paintings of the period that I have seen; though some of these may be more picturesque, or exhibit better figure-drawing. Nor am I singular in my liking, for though some persons, not very conversant with the subject, have sought to decry these windows, I have heard them awarded the highest praise by some of our best artists and architects. Yet these windows, though apparently not wanting in finish, are extremely coarse in execution, compared with a specimen of the modern German school. I have been told that, technically speaking, they are not more highly finished than a finished cartoon. But, however this may be, there is here no unpleasing contrast between shading and lead lines. The paint and lead unite, and form one harmonious whole: even the saddle-bars are forgotten in the sharp, crisp, brilliant effect of the window. This seems the perfection of glass-painting.

If, therefore, designs of the nature of the Brussels windows are capable of being represented in this comparatively simple manner, without the aid of an enamel colour, except for the purpose of shading, it follows that the same style of execution will apply easily to less complicated pictures.

Many additional reasons for preferring the mosaic style of glass painting to any other could be adduced, but the limits, and the nature of an address such as the present, preclude my going fully into details; and I embrace this opportunity to apologize for having elsewhere, for the sake of brevity, omitted certain qualifications, —immaterial, it is true, but which would have rendered some of my statements more strictly accurate.

I now propose to offer a few remarks on the composition and execution of painted windows, assuming the adoption of the mosaic system to be conceded. And here I would impress upon your minds, as practical men, the paramount necessity for carefully studying the remains of ancient painted glass, from the earliest period to the middle of the sixteenth century. These remains constitute our best guides for the future: the vast majority of them are by no means objects to be copied or re-produced, but they all demand such an examination as those only can make whose eyes have been educated by the habit of drawing and colouring. It is, I believe, from not possessing this essential qualification that our critics fall into such otherwise inconceivable blunders whenever they attempt to enlighten the world on the subject of glass-painting, and that they are so readily cajoled by those whose interest it is to cajole them. And I am sure that, when you shall have completed such an examination as I have recommended, and compared the results of your own experience with the precepts and practices of our friends, you will find that my animadversions on them are fully made out.

I shall not dwell on the variety of texture in glass of different dates, the existence of which, by the way, was to be inferred from the sense of vision; because this fact has been established, beyond dispute, by recent chemical research. But you will find it equally true that the execution of ancient glass paintings varied with the nature of their material. When the glass was rich and solid, the execution of the painting was simple: when the glass was thinner and poorer in appearance, the execution of the painting became more elaborate. And, to a certain extent, their composition follows the same law,—a circumstance which affords the best proof of the common sense and originality of the mediæval artists, and a significant commentary on the opposite practice of our critics, who, up to the present day, have sanctioned works executed in the flimsiest possible material, without any greater pictorial manipulation than is to be seen in ancient works composed of the richest possible material.

These considerations should never be lost sight of in designing a painted window.*

THE PALACE OF THE FINE ARTS, PARIS.

THE Palace of the Fine Arts, constructed for the Universal Exhibition of 1855, is situated between the *Avenue Montaigne* and the *Rue Marbeuf*, and covers a large extent of ground. We have engraved a plan of the building, which first appeared in the *Revue des Beaux Arts*, and our readers will thus get a better idea of the arrangement than could be conveyed in words. It will be seen that some of the principal masters of the French school have each an apartment to themselves. The number of works sent in by French artists was very large, much larger than the jury could have found room for, even if they had deserved it. Many of the artists consider themselves greatly injured by the decision of the jury against the admission of their pictures. The ordinary annual exhibition has not been held, and they find themselves without the means of bringing their works before the public. The gallery where the refused works, not already reclaimed, are placed, has acquired the title of the Necropolis, or Field of the Dead!

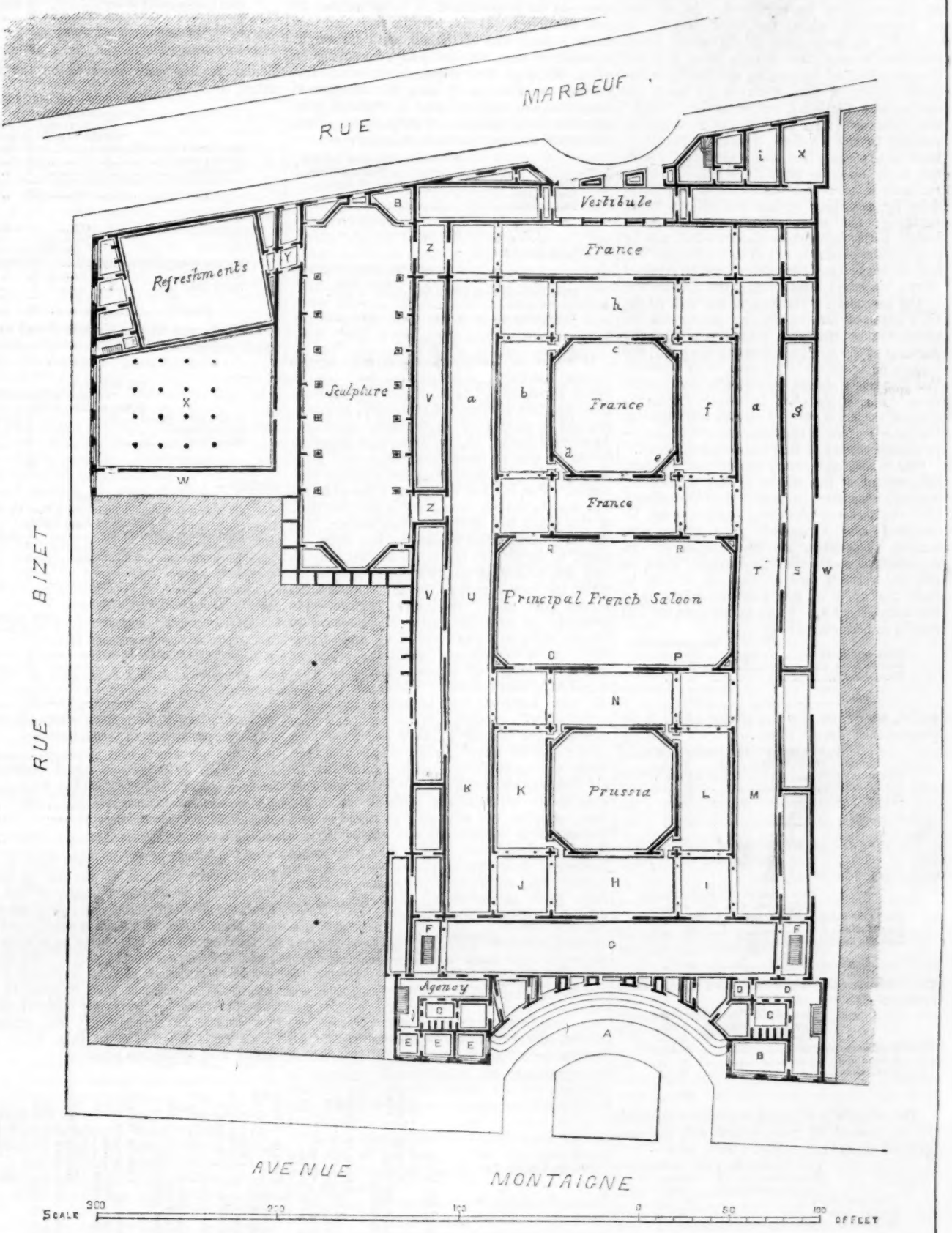
A statement of the number of works contributed by the different countries will be found in our last number (p. 231).

The postponement and other causes have acted very prejudicially against the Exhibition up to this time. It will need a strong effort on the part of the management to reawaken that enthusiasm which has been quenched.

REFERENCES.

A. Carriage-way.
B. Office.
C. Court.
D. Managers.
E. Catalogues.
F. Principal stairs.
G. Denmark department.
H. Swiss department.
I. Baden.
J. Italy.
K. Belgium.
L. Austria.
M. Great Britain.
N. Spain.
O. M. Yvon's works.
P. M. Gérôme's works.
Q. M. Couture's works.
R. M. Muller's works.
S. English sculpture.
T. Great Britain.
U. Holland.
V. Depôt for refused works.
W. Area.
X. Store-house.
Y. Lobby.
Z. Lobby.
a. France.
b. M. Horace Vernet's works.
c. M. Delacroix's works.
d. M. Lehmann's works.
e. M. Flandrin's works.
f. M. Ingres's works.
h. M. Decamp's works.
i. Guard-house.

* To be continued.



PLAN OF THE PALACE OF THE FINE ARTS, FOR THE PARIS UNIVERSAL EXHIBITION.

NOTES ON THE USE OF TURPENTINE IN HOUSE-PAINTERS' WORK.

IF we have not found means to *remove* obstacles to improvement in methods for the preservation and embellishment of buildings, our pages have already presented to English readers,* in as few words as were necessary, a portion of the groundwork to the discovery of any process calculated to ensure durability, and to raise the standard of art in interior decoration. Definite knowledge of the materials and operations with which the house-painter is concerned—simple as these may be deemed by some—can scarcely be considered as having been established, prior to the elaborate experiments of which we have given some results.

M. Chevreul's next subject of inquiry—though not undertaken with all the objects referred to in the opening remarks of our first article—is by no means to be disconnected from the desired end of durability, and that of deadness of surface. The question proposed is,—Does the essence of turpentine augment the siccative property of pure linseed oil, and of the same oi mixed with white of zinc?

The relative proportions of oil and turpentine employed in painting, will vary according to the nature of the surface, the desired solidity of the coat of paint, the colours, and the character of brilliancy, or deadness, desired. The difficulty of our own object of inquiry will shortly be seen.—The chief uses that our author discovers in the turpentine are these. It facilitates the application, by diminishing the

* See pp. 109 and 193.

viscidity of the oily mixture; and it allows the appearance of the surface as to deadness or otherwise, to be regulated. It is also of importance when the work has to be varnished, in preventing cracks which would otherwise be seen; and in such cases, it is said the proportion of turpentine can hardly be too great. But, if the work is to have the *maximum* of durability, and be neither "dead" nor varnished, then the turpentine should be reduced to the smallest possible quantity,—because, as we have tried to keep in view throughout, in the oil is the principle of stability. The *rationale* is this:—the work *without* turpentine dries by absorbing oxygen, but without losing anything; the work with turpentine dries, indeed, partly in a similar manner—but, also by evaporation—losing nearly all the turpentine. The less the turpentine, the more oil will be retained after drying, and consequently the greater will be the durability. The greater also will be the time required for the drying. As regards the prevention of cracks in future varnishing by previous addition of turpentine to the paint, the turpentine is required because it is essential that first coats should be perfectly dry to work upon. For, if the work be merely dry on the surface, the drying of the varnish will separate the outer surface of the paint from the inner,—producing the result that has been mentioned.

Our author endeavours to ascertain whether, independent of the effects already alluded to, turpentine has siccative properties of the ordinary kind—or those of absorbing oxygen,—and he compares also those of some other substances. The latter are first considered. In experiments commenced in January, 1850, on oils and vehicles, laid on surfaces of oak, he finds the white of zinc siccative relatively to the manganesed oil. Thus, in one case, we find results as here stated:—

	Manganesed Oil.
First coat dried in	18 days.
Second ditto	7 „
Third ditto	8 „
Total	33 „

whilst, admixture of white of zinc added to the properties of the oil, thus:—

	Manganesed Oil, 34 Parts by Weight; White of Zinc ... 40 ditto.
First coat dried in	12 days.
Second ditto	3 „
Third ditto	3 „
Total	18 „

The same effects are produced upon a mixture of pure oil and manganesed oil. Thus, whilst in the following case,—

	Pure Linseed Oil, 36 Grammes; Manganesed Oil, 16 ditto.
First coat dried in	37 days.
Second ditto	3 „
Third ditto	3 „
Total	43 „

the addition of white of zinc gave these results:—

	Linseed Oil, Pure, 36 Grammes; Manganesed Oil... 16 ditto; White of Zinc ... 56 ditto.
First coat dried in	25 days.
Second ditto	4 „
Third ditto	4 „
	33 „

The white of zinc, again, is siccative relatively to the linseed oil pure, mixed with the manganesed oil and turpentine. Thus, with—

	Pure Linseed Oil, 1 Part by Measure; Turpentine..... 1 ditto; Manganesed Oil, $0\frac{1}{2}$ ditto.
First coat dried in	36 days.
Second ditto	3 „
Third ditto	2 „
Total	41 „

but, with—

	Linseed Oil, Pure, 1 Part by Measure; Turpentine ..... 1 ditto; Manganesed Oil... $0\frac{1}{2}$ ditto; White of Zinc..... $2\frac{1}{2}$ ditto.
First coat dried in	27 days.
Second ditto	3 „
Third ditto	1 „
Total	29 „

He then proceeds with the question of the influence of turpentine on the drying of pure linseed oil, and on a mixture of that oil with white of zinc. The experiments were tried in April and May, 1850, and were now on glass. They showed that whilst three coats of pure oil required 25 days, the same oil, mixed with half its volume of turpentine, would dry in 20 days. Linseed oil dried more quickly mixed with white of zinc, than the same oil with turpentine,—in the proportion of 11 to the number 20 just mentioned. It may here be remarked that whilst a single coat of the oil, with its weight of white of zinc, required 3 days for drying on glass, 30 days were required on oak. But whether on glass or on oak, the mixture of linseed oil and white of zinc is rendered more siccative by the addition of turpentine. Thus, the record of experiments is as under:—

	Linseed Oil and White of Zinc.
First coat required to dry (on glass)	3 days.
Second ditto	4 „
Third ditto	4 „
Total	11 „

whilst, in the case of—

	Linseed Oil, Turpentine, and White of Zinc.
First coat required to dry (on glass)	2 days.
Second ditto	2 „
Third ditto	2 „
Total	6 „

It might be thought unnecessary to inquire further into the question whether pure oil—or rather, oil mixed with turpentine—would become more siccative by time. M. Chevreul, however, thought a number of experiments necessary. As to pure linseed oil, he found that exposure to the air was of more importance than mere lapse of time, in developing the siccative properties. For, oil that had been exposed forty-four days to the air, would dry in half the time of that which had been kept from the air. On the other hand, after turpentine has been exposed to the air, the residue, if applied, may be said not to dry at all: whilst the turpentine which has been kept from the air, dries rapidly, leaving the slight residue as before.—He proceeds to test the value of exposure to the air, as regards a mixture of oil and turpentine. As to the separate liquids, the advantage and disadvantage of exposure had been what might have been inferred. The experimentalist did not, however, try, as might have been expected, with a mixture of oil that had been exposed, and turpentine that had been kept close; but he mixed liquids which had been under the same circumstances. As it was, he did find that the influence of the air was very sensible on his mixtures.—Would not this, then, manifest the existence of siccative properties, from exposure to the air, as regards the oil in the mixture, greater than what are to be derived from addition of turpentine in such cases? For, results of experiments in May to July, 1850, on the drying of portions of the mixtures applied, were as under:—

	Oil which had been kept close 44 days, 2 Parts by Measure; Turpentine ditto, 1 ditto.
First coat required to dry	8 days.
Second ditto	8 „
Third ditto	6 „
Total	22 „

whilst, the result of exposure was the following:—

	Oil which had been exposed 44 days, 20* Parts by Measure; Turpentine ditto, 1 ditto.
First coat required to dry	4 days.
Second ditto	5 „
Third ditto	6 „
Total	15 „

Similar results were observed on the liquids mixed, thus:—

	Oil..... 2 Parts by Measure; Turpentine, 1 ditto. The Mixture kept close; not the Liquids separately.
First coat required to dry	4 days.
Second ditto	5 „
Third ditto	5 „
Total	16 „

whilst,—

	Oil..... 2 Parts; Turpentine, 1 ditto. The Mixture exposed.
First coat required to dry	3 days.
Second ditto	$2\frac{1}{2}$ „
Third ditto	4 „
Total	$9\frac{1}{2}$ „

The influence of the air was found to be of equal importance in the case of combination with the white of zinc. Thus:—

	Oil, kept close 44 days, 1 Part by Weight; White of Zinc, 1 ditto.
First coat required to dry	3 days.
Second ditto	6 „
Third ditto	4 „
Total	13 „

whilst,—

	Oil, exposed 44 days, 1 Part by Weight; White of Zinc, 1 ditto.
First coat required to dry	2 days.
Second ditto	2 „
Third ditto	3 „
Total	7 „

Again, with turpentine,—

	Oil ..... 2 / Turpentine..... 1 / White of Zinc... 3 — The mixture kept close 44 days.
First coat required to dry	3 days.
Second ditto	$2\frac{1}{2}$ „
Third ditto	2 „
Total	$7\frac{1}{2}$ „

whilst the time was lessened, where the mixture had been previously exposed, thus:—

	Oil ..... 2 / Turpentine..... 1 / White of Zinc... 3 — The mixture exposed 44 days.
First coat required to dry	$1\frac{1}{2}$ days.
Second ditto	2 „
Third ditto	2 „
Total	$5\frac{1}{2}$ „

The influence of the essence upon oil which had not been exposed to the air, in hastening the drying, is therefore matter of fact. But, since the drying is more rapid when the mixture had been made, and then exposed,—whilst the author regards the turpentine as a siccative, he finds that it acts so, feebly. The following *résumé* shows what may be expected from the use of oil which has been exposed to the air, whether pure, or previously mingled with half its volume of turpentine. The experiments were made from May to July, 1850, and the coats were applied on glass:—

Oil, or Vehicle, &c.:—	Linseed Oil, Pure.	Linseed Oil, Pure..... 100 / White of Zinc ..... 100 — Parts by Weight.	Linseed Oil..... 90 / White of Zinc ..... 100 / Linseed Oil, exposed to the air 60 days..... 10 — Parts by Weight.	Linseed Oil..... 90 / White of Zinc ..... 100 / Linseed Oil, 2 / Turpentine, 1 } Exposed to the air 60 days. 10 — Parts by Weight.	Linseed Oil..... 90 / White of Zinc ..... 100 / Oil kept uncovered ..... 10 — Parts by Weight.	Linseed Oil..... 90 / White of Zinc ..... 100 / Manganesed Oil ..... 10 — Parts by Weight.	Linseed Oil, exposed to the air..... 100 / White of Zinc ..... 100 — Parts by Weight.	Oil, 2 / Turpentine, 1 } Exposed to the air. 100 / White of Zinc..... 100 — Parts by Weight.
Days occupied in Drying, &c.:—								
First coat	5	3	3	3	3	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Second coat	6	3	2	2	2	1	1	1
Third coat.....	5	3	2	2	2	1	1	1
Total,—Days.....	16	9	7	7	7	$3\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{1}{2}$

It is thus shown that white of zinc is siccative relatively to the pure oil, or to the mixture of oil and white of zinc, applied on glass; that oil exposed to the air, pure or mixed with turpentine, becomes decidedly siccative; and that manganesed oil has the properties in a still higher degree. But, if the ordinary oil be exposed to the air until a pellicle begins to form upon it, ten parts of it will be found as effectual as ten of the manganesed oil.

M. Chevreul found that the work executed wholly with the white of zinc and oil exposed to the air, had the appearance of a varnish, in contradistinction to that where marks of the

* This number in M. Chevreul's large table is perhaps a misprint for the number 2.

brush are left. The pigments of the two last columns of the table showed none of those marks. Hence, it is suggested that effect might be gained in work, by the contrast of different kinds of oils. The absence of the marks would be an argument in favour of the white of zinc. Yet, in the course of inquiries into which we have been led by the direction that this subject has taken, an impression has been conveyed to us, somewhat different from that which would be inferred from the statements of M. Chevreul,—although these may be not incorrect. On the authority of an experienced foreman—in the employ of painters who are recommended by some of the chief parties interested in the article—we might say, that roughness at least, of the surface is so considerable, at all events in English works, as to interfere much with the chances of durability,—having regard to the frequent cleansing which the best kind of surface will require. Were we to judge from such attempts as happen to have come before us, we could not make exception even as to marks of the brush. It is right, however, to state that the use of white of zinc over previous coats, especially where little labour is given in "rubbing down," does not give the material a fair chance in any respect. That kind of work of course forms the greater part of what is at at any time being done. Another practical man declares that the roughness can be due only to improper mixing, or want of skill in laying. It should further be understood—and it may perhaps assist in explaining these marks of the brush,—that it is a mistake to say that zinc "covers" better than any other pigment, in the sense in which the words would be generally understood. The specific gravity of the white of zinc is less than that of the white of lead; therefore, where there are equal quantities by weight, the zinc will suffice for more work than the lead. It is also said to take up a larger quantity of oil. This property, notwithstanding the injunction of some manufacturers,—to use even more of white of zinc than white of lead,—no doubt leads to the common fault of transparency in the coats. We apprehend, however, that under the best conditions, four coats of white of zinc colour would not be worth more than three coats of white of lead. Of course there might be, and no doubt are, some great advantages in the zinc. But, should there be inevitably, great roughness of surface, that will go far to explain the prejudice against the paint,—the accumulation of dirt being sufficient to give the appearance, though possibly removable, which on the white of lead, would result from chemical action.

Though M. Chevreul's attention, at the date of our latest information, was still directed to the question as to white of zinc, it does not appear that he has had the opportunity of considering the desirableness of a substitute for turpentine. The poisonous effects of white of lead are chiefly operative in the process of manufacture; though serious injury also results in the "rubbing down" of old work. Many workmen, indeed, suffer from inattention to personal cleanliness at meal times,—and were we to consider the nature of some of the colouring substances used, such as the arseniate of copper, this alone would be found to be no trifling matter. But the chief source of inconvenience, if not of injury to health, to the inhabitants of a newly-painted house, we really believe, arises from the turpentine. One invention at least has been put forward, professing to obviate this; but it has not been generally adopted.

We took up the present subject, rather with the view of showing *for what* objects progress was needed, and to present *a few steps* for our practical readers to make the advance, than with the idea of accomplishing a perfect system ourselves. The experiments on turpentine, and other "vehicles," of which we have compiled an abstract, cannot but prove of value to those who would pursue the subject; and it is only to be regretted, that the help which they afford in regard to the question of durability, is to be deduced from them, instead of being directly given. Such assistance, however—as will have been apparent—they may afford, and the next branch of inquiry, which bears upon the use and manufacture of "driers," will, we think, be perhaps even more important to our readers.

AN ARCHITECTURAL SCAMPER IN FLANDERS AND BRABANT.*

LIEGE—MALINES.

OUR attention will now be directed to the city of Liége, one of the most ancient and attractive of the many interesting places in the kingdom of Belgium. Long the metropolis of the dominions of its prince-bishop, the fruits of its ecclesiastical wealth have descended to us in the many venerable churches which remain after many have been destroyed, whilst its mineral riches worked up in its iron foundries, its manufactories of cutlery and firearms, have upheld its prosperity through every revolution and change of government.

The site of the town is picturesque. The lower portion is situated on a level flat, occupying both sides of the rapid Meuse at its junction with the Ourthe. Between this and the higher town extends a boulevard planted with trees, above which rise terraces of houses intermixed with trees, overtopping each other, crowned on the summit by the venerable churches of St. Martin and St. Croix.

The ecclesiastical architecture of Liége differs in many essential points from that of Western Flanders, which latter has much in common with the architecture of Northern France and England. That of Liége approaches nearer the German Gothic, particularly that application of the Lombardic type which prevails at Cologne and along the Rhine.

St. Jacques is the most celebrated of its churches. Its architecture has been greatly admired and praised, much more, I conceive, than it deserves; but it is curious, as giving, perhaps, the best illustration extant of the latest period of Continental Gothic just before it was swamped by the Renaissance. Its date is said to be 1513-28, or about the same period as our Henry VII.'s Chapel. The general character of the building is that of richness, but when more closely examined, the details appear flat and poor.

The construction is in many respects singular. The nave has a narrow gallery below the clerestory windows, faced with an open tracery parapet, but there is no proper triforium. The tracery of the windows has flowing lines, but possesses notwithstanding something of the English perpendicular character.

The vaulting appears complicated, but is in reality poor and crippled, showing a decline in the geometrical knowledge which distinguished the best age of mediæval art. The springers built in the wall, and the ribs arising from them, do not abut fairly, or correspond the one with the other; the original design probably having been changed. The awkward junction between the two is attempted to be hidden by the introduction of shields to cover them. The bosses, at the intersections of the vaulting, are almost Italian in character. The pictorial ornamentation of this vaulting is somewhat celebrated, and probably furnished the idea for the similar style of decoration at the Temple church of London. The forms of the ornaments are graceful, and cover the spaces well, but the prevailing tone is too grey: the general effect lacks brilliancy.

There is a magnificent entrance porch on the north side of the nave, lighted by three large windows on each side, with wall shafts and rich groined vaulting.

Externally the aspect of the building is somewhat flat, with thin meagre details. A curious external open gallery, with arcaded front, runs along the clerestory walls under the eaves, apparently a reminiscence of the arcaded galleries which abound in the Lombardic churches on the Rhine. The west end exhibits the remains of a much older building in the Romanesque style.

The cathedral of St. Paul is a large cross church. The piers and arches of the nave appear early thirteenth-century work; the remainder probably fourteenth-century. This church contains a beautiful modern pulpit richly carved in the Gothic style, with marble statues of life-size by Geefs.

St. John's is a church in the modern Italian style built on an old site. The nave is octagonal, with side aisles carried round, and is covered by a dome. The choir extends eastward the width of one plane of the octagon, with apsidal end. Adjoining this church are the dilapidated remains of the ancient cloisters, which have been vaulted with fan-groining; the ribs stone filled in with brick. These are now undergoing reparation.

The church of Sainte Croix, standing on an eminence overlooking the town, is highly interesting, from its admixture of styles, its peculiarities of construction, and its excellence of workmanship. The part west of the transept is Lombardo-Romanesque of early date.* The plan of this portion is very complicated. From the four massive piers which carry the superstructure, radiate three semicircular lobes, north, south, and west, forming when carried up *une figure trilobée*, as the French would call it. These are ornamented externally with arcaded galleries. Above the centre piers rises an octagonal tower, with subordinate circular turrets at the angles. This part of the building is now undergoing restoration. The building immediately eastward of this is a parallelogram, having three aisles of equal height with two small transepts at the *west* end. This is properly the body of the church, and is of late thirteenth or early fourteenth century work. The chancel is a prolongation of the centre aisle, with apsidal termination, and appears of earlier date than the nave. The window tracery is geometrical. The form of the aisle windows is the spherical triangle. The chancel walls are covered with blank arcades. Similar arcades are worked under the windows of the aisles and transepts. The spandrels of these are sunk in panels, filled with sculptures of great beauty of execution. For grace, expression, and delicacy, these are most remarkable works. I know of nothing in England, except it may be the Percy shrine, in Beverley Minster, at all to compare with them. The undercutting of the figures in the complicated groups is most remarkable. There are a few remains in these panels of polychromic decoration. This interior has undergone most careful restoration. There is some good modern stained glass in the chancel windows.

St. Martin's is a large cross church. The greater part of the edifice is of late thirteenth-century work, but portions are of much later date, approximating to that of St. Jacques. The choir vaulting is painted and ornamented in bright colours. This part is of late workmanship, and, by numerous indications, it would seem that about the same time there has been an interference with the older work in many parts, modifying it to the taste of the period.

St. Servais presents nothing remarkable externally, except some good early fourteenth-century tracery in the windows.

The Redemptorist Church, in the Rue Hors Château, has a west front of Florid Renaissance architecture. This and the previous one were closed at the time of my visit, and I did not attempt to procure admission.

The Church of St. Barthélemy is very ancient, the date of its erection being ascribed to the year 1000, with which its style of architecture corresponds. It is a cross church, the choir rather short, with multangular apse.

The nave has double side aisles. The exterior is frayed by the weather to such an extent that great part of its detail is destroyed, though it never appears to have been very rich. The west front has three heights of round arches, and is flanked by twin towers, carried up two stages above the roof, where the old work terminates with the remains of a corbel table. The part above this is brick, finished with a truncated pyramidal slated spire.

The clerestory of the nave retains its original small Romanesque windows, flat buttresses, and corbel table. The side aisles have been modernised.

Contrary to what is usually found, the interest attaching to this church is confined to the outside. The interior has been completely modernised, and every vestige of antiquity destroyed. The solid Romanesque piers have been transformed into Ionic columns, with straight entablature over the arches.

An inscription on the ceiling gives the date

* See p. 181, *ante*.

* M. Schayes, quoting Anselm and the *Chronicon Episcop* ascribes it to the year 979 A.D. with which its style appears to correspond.

of this transformation as the year of grace 1705.

St. Denis is of Romanesque foundation, but contains at present a mixture of styles. It is a cross church in plan. The nave has double aisles. This part of the building has been transformed into the Renaissance style, and presents nothing remarkable. The choir is probably of fifteenth-century architecture. It is very lofty in itself, and its height is much increased by the floor being elevated above that of the nave, from which it is approached by two flights of steps. The east end is multangular. The vaulting is elaborate, the ribs meeting in a sort of coronal in the centre. The choir and transepts have recently been carefully restored, and the vaulting ornamented in the style of St. Jacques, but in brighter tints. The choir windows have been filled with modern stained glass, of good design and colour. The north transept contains a most elaborate piece of sculpture in wood, of Late Gothic design, in eleven compartments, representing passages from the life of Christ and the saints. The figures are in alto relievo, and display a wonderful amount of patient elaboration.

Of the secular buildings, the most remarkable is the ancient palace of the bishop, now the Palais de Justice, public offices, &c. It is a very large building, containing two interior quadrangles, surrounded with cloisters. The largest of these is occupied as a market-place. The date of the building is the early part of the sixteenth century, and it contains the usual admixture of Gothic and Italian, peculiar to the period.

The pillars of the cloisters are baluster-shaped, grotesquely carved in different designs, supporting pointed arches, with panelling and pointed windows in the walls above.

The university buildings are extensive, occupying three sides of two open quadrangles: these are of brick. A central building within the larger quadrangle is of stone, with an Ionic portico in front; but the design is low, squat, and clumsy. In front stands a recent statue of Grétry, the composer, who was a native of the town.

The street architecture of Liége is worthy of notice. Although the town is much modernized, yet a good deal that is curious and interesting still remains. Many of the houses on the Quai de la Batte and the adjacent streets, remain in all the original quaintness of their wood-carving and grotesque enrichments, and in other parts of the town fragments may be sketched here and there which will well repay the trouble. The Rue de la Regence and the Rue de l'Université, are modern; and several buildings on the Place Verte and the central parts, are large and handsome, and display some originality of design, with many of the features before remarked on, as peculiar to the Flemish school. Although a manufacturing town, Liége is remarkable for the number of its open places and the intermixture of verdure and foliage with its buildings and streets.

We will now shift the scene to the ancient city of Mechlin or Malines, which, though passed on the railway by multitudes of travellers, is not visited as frequently as it deserves. Its ecclesiastical architecture is fine, and its streets and quays present many rich morsels for the sketcher's pencil. The great architectural feature of Mechlin is its noble cathedral church, dedicated to St. Rombaut. In the boldness of its design, the magnificence of its proportions, and the excellence of its workmanship, it ranks in the very first class of Flemish churches. Its plan is the usual Latin cross, with apsidal east end, the aisles continued round, with octagonal chapels projected out between the buttresses. Octagonal chapels are also thrown out on the north side of the nave. The perspective of the interior is very fine, owing to the clear, uninterrupted view from the west wall of the tower to the extreme east end.

The style of the architecture is somewhat mixed, and has the appearance of a carcase of thirteenth or early fourteenth century building raised upon, decorated, and completed, in the fifteenth century. The side chapels of the nave are evidently a subsequent addition, being later in style and more highly enriched. The vaulting especially is more complex in design with bosses at the intersections. In one of the chapels, which is larger than the rest, the old buttresses have been cut away, carved into bosses and worked into the vaulting in a very ingenious manner.

The tracery of the choir windows and the finish of the choir generally is of a somewhat later date than the finish of the nave. The mullions and tracery are more delicate with the *fleur-de-lys* pattern in the window-heads of the apse. The walls are covered with light panelling. The piers of the side chapels of choir are shafted, the mouldings running round the arches without capitals.

The tower is at the west end,—a splendid specimen of late fifteenth-century architecture. Its height is stated by one authority to be 348 feet, by another, 316 feet. The original design is said to have included an open work spire, which would have raised the entire height to 600 feet. The inside of the tower, with a noble daring, is entirely thrown open to the church, the east wall being carried on an arch about 100 feet high and 30 feet wide. The design of the exterior of the tower is very fine, and the workmanship admirable. The plan of the structure, as in most similar cases, is very simple. Massive square set buttresses rise from the ground, diminishing as they ascend, and break at each stage into finials, crockets, and tabernacle work. The deep recesses are occupied by richly traceried windows still further recessed. Semi-octagonal stair-turrets are projected on the north and south sides. The depth of the shadow and the massiveness thus obtained, are finely relieved by the grace and elegance of the decorations. Had the spire been erected on its summit, it would have been the finest thing of its kind in the world. As it exists, its beautiful proportions, and the judicious tempering of verticality by occasional horizontal lines, bring it as near perfection as can be conceived. In this particular, I consider it superior to the west end of either Antwerp or Cologne Minster.

The whole of the exterior is characteristic and fine, the east end being the richest in panelling, open parapets, gables, and decorations. The gables of the transepts have recessed galleries, faced with a pierced arcade of long slender arches following the slopes of the roof. The pulpit of this church, representing the Conversion of St. Paul, displays boldness and action, and is very effective.

Notre Dame is a large cross church, with the usual Flemish arrangements,—the east end apsidal with the aisles continued round and side chapels to choir. The aisles of the choir have been modernised. The general style of the work is late fourteenth century, running into the fifteenth. This church contains a fine carved pulpit, supported by statues of the four evangelists, with their emblems. The balustrade consists of rich scroll-work, with statues of Moses and John the Baptist at the foot of the stairs. The organ is a good Renaissance composition, placed on the east side of the south transept, opposite the south aisle of the nave. Externally, the boldly projecting buttresses and the deeply recessed windows present more of the character of English Pointed than is usual on the continent. The tower is at the west end, lofty and massive, with enormous angle buttresses (12 feet projection), and two stair turrets. It is surmounted by a low wooden slated spire. The principal entrance to the church is under the tower, which is a more usual arrangement in England than on the continent.

St. John's church is rather a rude construction of early date, with a plain solid tower. The interior is spoiled by modern alterations of the seventeenth or eighteenth century. The pulpit consists of a group illustrative of Christ's Charge to Peter, the figures very good; some carving under the organ at each side of the western entrance of Christ Feeding the Multitudes, and an allegorical subject are very beautifully executed.

The Grande Place and Market-place are lined with quaint and characteristic specimens of Flemish architecture. The buildings on the Quais also present some fine specimens, both in wood and stone. One of these, at the corner of Kraam Straat, has curious painted bas-reliefs in the tympana of the windows, exhibiting our first parents *in puris naturalibus*, with the tree of knowledge, and in another part the angel driving them out of Paradise. Adjoining this is a curious wooden gable, with finely-carved brackets and figures.

Our architectural notes for the present must terminate here. I will close with a single remark. If any one wishes to enjoy travelling, let him sally forth with a definite object in view: I do not much care what the object is, whether geological, antiquarian, artistic, botanic, or what not, provided it be innocent. Ignorant people might suppose that it would be a sort of slavery and constraint, and might prefer a listless vacancy, or a break-neck scamper, but they are greatly mistaken. It is wonderful, when you set up an idea as a central one, how everything else groups around it, and falls into its proper place, and how it adds ever-increasing interest to everything which is seen.

A little labour spent in the study of architecture and archæology would be repaid a hundred-fold, in these railway days, by the additional zest and interest communicated to the scenes passed through by the traveller. Every "Grande Place" contains a history in itself.

"Could we observantly but seek it out," every venerable church preaches "sermons" from its "stones" to those who can rightly understand their language. Add to this a little facility in sketching, which may be easily acquired, and there are few modes of spending a few weeks agreeably and instructively at the time, and which will be looked back upon with greater satisfaction, than an architectural and archæological tour.

J. A. PICTON.

ARCHITECTURAL PUBLICATION SOCIETY.

THE annual meeting of this society was held on Thursday evening, the 10th instant; Mr. Ashpitel, F.S.A. in the chair. The report of the committee was read, setting forth the progress which had been made, and calling on the profession for such an addition of members as might enable the committee to complete the Dictionary forthwith.

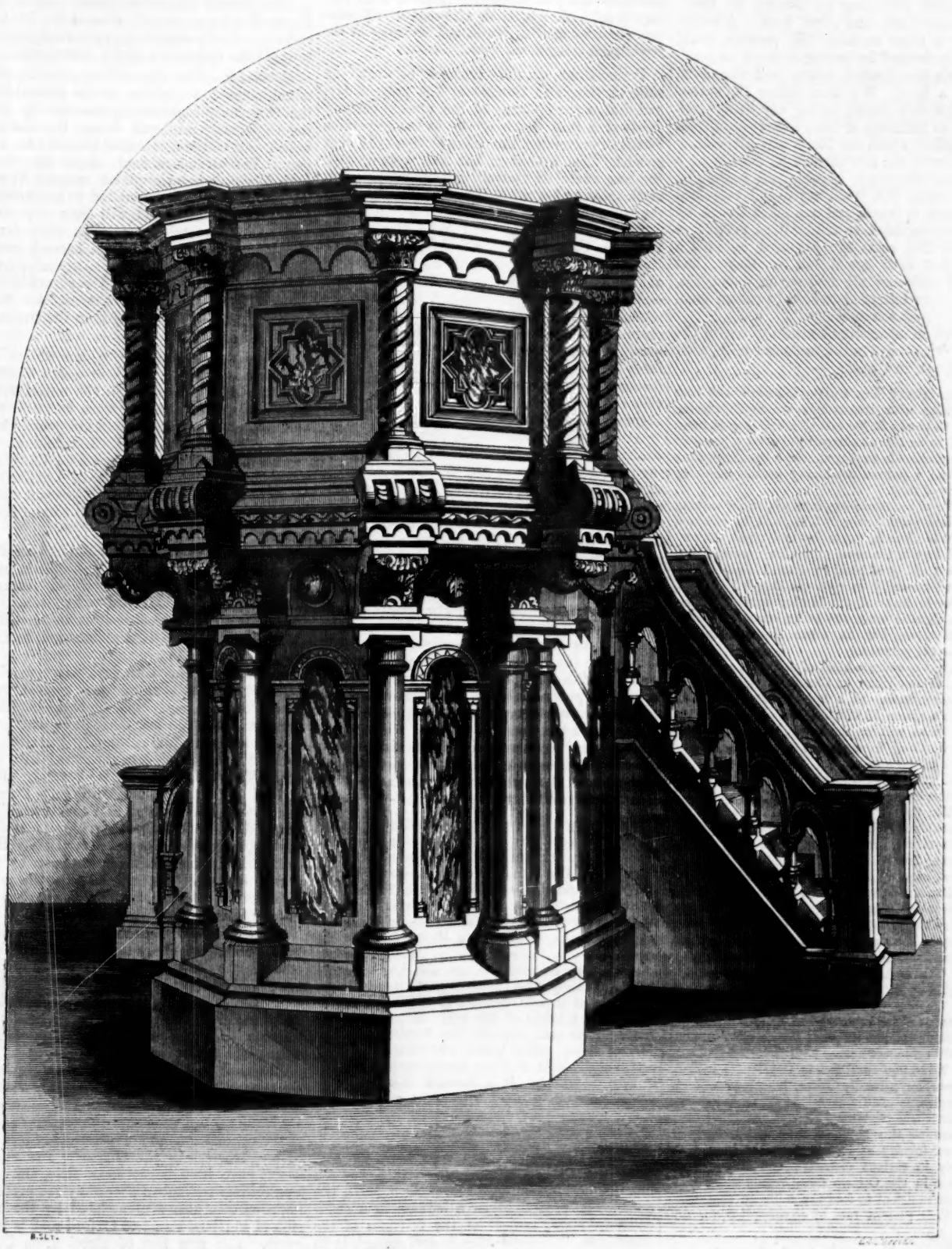
From the year 1852-53, there is a balance of 26*l.* 15s. 10d. which, added to the total income, amounts to 470*l.* 8s. 4d. for the year 1853-54: of this sum 237*l.* 19s. 8d. only is expended, leaving a balance of 232*l.* 8s. 8d. for further publications. The probable income for the year 1854-55, is anticipated to be at least 420*l.* for which the Works consisting of illustrations are now in hand.

The chairman drew the attention of the meeting to the various subjects of the report, more especially adverting to the greater number of illustrations given in the last part; and to the quantity of matter for the year's proportion of which double could be given if there were twice the number of subscribers, and urged upon the members to use their best efforts in increasing the list. He was pleased to find that there was great difficulty in obtaining copies of the early numbers of the publications, which were now being purchased by the secretary for the purpose of supplying complete sets to new members.

The usual votes of thanks were prefaced by remarks in favour of the society's operations, by Messrs. C. Mayhew, C. C. Nelson, G. B. Williams, H. B. Garling, &c. Messrs. G. Aitchison, jun. Octavius Hansard, and H. R. Newton, were elected new members of the committee. The meeting then adjourned.

We would remind the profession of the great importance of completing properly the dictionary in question; and again urge those of our brethren who do not at present belong to the society, to help the committee in this (no ordinary) undertaking, not only by themselves subscribing, but by obtaining the assistance of their friends practising engineering and building, so that a successful termination may be given to a work which promises to be honourable and useful to us all. Our readers in the colonies, and other distant parts of the British dominions who interest themselves in architecture should support this work, as one which will be of great practical benefit to themselves.

BURNING OF A CONTINENTAL CHURCH.—A letter from Lille reports the burning of the church of La Basée, remarkable for the magnificence of its spire.



PULPIT, REGENT'S-PARK CHAPEL.

PULPIT, REGENT'S-PARK CHAPEL.

We add to our illustrations of the chapel recently fitted up on the site of the Diorama, in the Regent's-park (p. 210, *ante*), under the direction of Mr. John Thomas, a view of the pulpit. It is constructed of Caen stone, and has a panel of alabaster in each of the sides.

Reward for Smoke Prevention.—The Steam Collieries Association, at Newcastle-upon-Tyne, advertise, in the *Newcastle Chronicle*, their offer of a premium of 500*l.* upon certain conditions, for the invention of an effectual method of preventing the emission of smoke from the chimneys of multitubular boilers.

THE UNITED STATES AND CANADA.

About fifty-five years since a remarkable book was published by a gentleman still in life, and titled "Weld's Travels in America." These travels extended over a large portion of the United States and Canada, and the book was translated into various European languages, and not only was it looked on at the time, it appears, as a great authority on American subjects, but to its influence the promotion of colonization in Canada has been mainly attributed. We have a volume now before us,* written by a half-brother of the preceding author, the esteemed assistant secretary of the Royal Society,—and the contrast between the two books is a very curious one in many respects, as every reader may readily conceive. The present volume may be regarded as a sort of cursory report of progress made since the visit in 1795-7. It is pleasantly written, though light and tripping, as a mere vacation tour must necessarily be, however observant or reflective the author.

Mr. Weld's recent route, from Boston, where he landed from one of the magnificent Cunard steamers, ran through Massachusetts northwards by Montpellier to the Lakes, through which, after a trip down the river to Montreal and Quebec, he took his course as far as Detroit, New Buffalo and Chicago, whence he passed southward by Cincinnati and Cambridge to

* "A Vacation Tour in the United States and Canada." By C. R. Weld, Barrister-at-Law. London: Longman and Co. 1853.

Washington and Gosport, his southern extreme point, thence returning to Boston by Baltimore, Philadelphia, and New York. A better route for a three months' trip, perhaps, could not well be devised for seeing as much as possible of both the United States and Canada in so short a time. We shall follow the author through his own pages, noting any little particulars as to buildings or other objects of interest to our readers which our limits may allow of.

Speaking of the new theatre at Boston as a magnificent structure, capable of containing 4,000 persons, Mr. Weld says,—"I examined this building in detail, and was much struck by the method employed to render it as perfect as possible. The seats are disposed in such a manner that each commands the stage; and the latter embraces all modern improvements, including a curtain of sheet-iron to cut off communication with the audience."

He gives an interesting account of one of the gigantic backwoods lumber-trade saw-mills, near Peterborough, in Canada:—

"The machinery is on a gigantic scale. 136 saws were working with tremendous velocity, reducing huge logs to planks at the rate of nearly fifty an hour. Instead of using files to sharpen the saws, a powerful punching-machine is employed, which cuts fresh faces on the teeth; a process combining greater efficiency with saving of time.

A portion of the machinery is employed for making laths, besides plank-sawing. This mill, in common with others in Canada, works day and night, devouring 70,000 logs in the season of nine months; but, though the quantity of planks produced is prodigious, the demand generally exceeds the supply. Indeed, such is the increase of the lumber trade, that new mills on a gigantic scale are being erected, not only on the Otonabee, but on other rivers favourably situated for the purpose.

During last summer a block of mills was completed on the St. Francis river, in Canada East, exclusively for the lumber trade. At a low estimate, these mills will saw in a season 20,000,000 feet of long lumber, and two trains will be in requisition to carry the planks to Portland, from whence they will be shipped to all parts of the world.

To feed such establishments from the northern forests involves an enormous amount of capital and labour. The firm of Egan and Co. who are at the head of the lumber trade on the Ottawa, employ in the forests through which that noble river passes, 1,700 horses, 200 bullocks, besides 400 double teams on the road, engaged in the conveyance of food and forage. During the winter 1854-5 (the timber is cut in this season), they had 3,800 men in their service, and 100 lumbering establishments in various parts of the country. Their consumption of pork amounts to 1,000 barrels annually, with other provisions in proportion. The cash transactions to keep this enormous machinery in motion exceed 2,000,000 dollars a year.

The returns of the exports of white pine alone from Quebec during the last six years show a vast increase; 17,400,000 cubic feet having been exported in 1853, and only 9,626,000 cubic feet in 1847.

The question naturally arises, how long will the Canadian forests continue to meet the enormous demand for timber. With a view of obtaining some information on this point, Government recently instituted an inquiry as to the probable duration of the supply in various districts; and it was ascertained that in the Ottawa forest-region alone there was timber sufficient to feed the mills on that noble river, at their present rate of consumption, for 600 years."

Mr. Weld paid a visit to the Victoria Railway-bridge works, at Montreal, of which Mr. R. Stephenson is the engineer. The bridge, as our readers already know, is to be on the plan of the Britannia-bridge in Wales.

"It will be constructed on twenty-four piers, with spaces for navigation exclusive of the two abutments, whence the tubes spring on either side. The centre span will be 330 feet, and each of the others 220 feet wide. The length of the bridge will be 10,284 feet, or about 50 yards less than two English miles. The clear distance between the under surface of the centre tube and the average summer level of the river will be 60 feet, diminishing towards each side. 210,000 tons of stone will be used in the construction of the piers, and 10,400 tons of iron on the tube, girders, &c. It is proposed to complete the bridge in 1860. At the present rate of progress, the expenditure will average 250,000*l.* annually. The Colossus of Rhodes, under which the pigmy shallops of former ages sailed, was esteemed a wonder of the Old World. But an iron bridge, spanning a river two miles in width, giving safe passage to burdens of hundreds of tons on its rivetted floor, and permitting ships of large tonnage to sail beneath it, is an achievement still more remarkable for the New World, and is worthy of the young giant rising in the West."

Perhaps no greater contrast between the state of things in Canada at the present day, and that at the opening of the present century exists than that which relates to the respective means of traversing the lakes at these different epochs. The author of the new volume took the lake route to Detroit, in one of the mammoth steam-ships, which now regularly traverse the lakes of Canada, and gives an account of it.

Between Cambridge and Wheeling, in the Western United State of Ohio, the author, strolling about after dinner, came upon a kind of van inscribed, "Daguerrean Car," in which really very good daguerreotyped portraits were produced, at the rate of 25 cents each; and he observed such cars in many small towns. There must be some truth in the gossip as to the fancy of the United States fashionables in favour of daguerreotyped visiting cards, since they are such "great patronizers of daguerreotypes," as Mr. Weld intimates they are.

At Washington the tourist visited the Smithsonian Institute, where, amongst other interesting matters, he saw "Mr. Warner's invention of gutta-percha stereotype, employed in carrying out Professor Jewett's method for printing catalogues by means of separate titles." The titles of the books being set up, a matrix is made therefrom, and a stereotype plate cast in gutta-percha. This is sawn into the number of titles of which it is composed, and the alphabetising is accomplished by the simple assortment and arrangement of these titles, which are fixed together in the requisite pages. By this means the books added to any library may be inserted in their proper places, and an annual catalogue published at a comparatively small cost. The catalogue of the Congress Library is printed in this manner.

The bold attempt which is being made at Washington to raise a monument to its founder that shall surpass all others in the magnitude of its dimensions, is of course alluded to:—

"According to the printed description, it will be 'the loftiest monument on earth to a nation's greatest benefactor,' and it gives the following measurements:—Base of the Pantheon, 250 feet diameter; height, 100 feet; height of the obelisk, 500 feet. The original plan contemplated the erection of a vast Pantheon temple, surmounted by a colossal statue of Washington, 30 feet high, standing in a chariot drawn by six horses, driven by Victory. But, as the funds drawn from voluntary contributions are not equal to defray the cost of this portion of the proposed structure, the works are at present confined to the obelisk, which has attained a height of 150 feet. It stands in the centre of the mall, opposite the President's house. Various states, public bodies, and individuals, have contributed blocks of stone bearing their names and emblematic devices. It is intended that the entire monument shall be cased with white marble. The blocks, which are very large, are raised to the summit by steam power."

At the Crystal Palace in New York, the first thing the author beheld on entering was "a huge mountain-like object swelling beneath the dome. It proved to be a balloon in a semi-collapsed state, typical of the fortunes of the Exhibition." Having already said enough as to the Exhibition itself, however, we shall pass on to the Astor Library, recently completed.

"The building is of Byzantine architecture. The interior consists of a noble apartment 100 feet long, 64 feet wide, and 50 feet high, at present containing 80,000 volumes. This number will soon be increased to 100,000. The books are very accessible. Any person above fourteen years of age is allowed to visit the library daily (excepting Sundays) between ten and five. There are other public libraries, but that founded by the munificence of Mr. Astor bids fair to become the largest in the city."

Mr. Weld has produced a very entertaining volume.

CAMBRIDGE ARCHITECTURAL SOCIETY.—At a meeting held on Wednesday, May 9th, Mr. A. Hallen read a paper on Deerhurst Church, accompanied by plans and drawings; and the Rev. A. Hutchinson exhibited a singular brass from Nivelles, in Brabant, and read a short account of it.

PROVINCIAL NEWS.

Grantham.—The subscriptions now in hand for the Newton monument amount to 1,335*l.* and there is talk of commencing proceedings at once towards the realization of the monument.

Colchester.—The district commanding-officer of engineers has made a minute inspection of the Government ground in the vicinity of this town (similarly employed during the last war), with a view to the erection of barracks for 5,000 men. The Ordnance field, about 30 acres in extent, will, it is believed, be occupied by wood huts in blocks, each calculated to accommodate a battalion of 500, and will thus provide for 3,000 of the total force. The huts for the remainder will occupy the old barrack ground, about 14 acres, which is still surrounded by the high oak pale fence as when the site of the barracks. The contracts for the erection of the huts will, it is said, be offered to the tradesmen of the town.

Dudley.—The contracts in connection with the South-Staffordshire Water-works Company for conveying water through the entire district from Lichfield to Dudley, were let on Tuesday week, it is said, several thousand pounds below the engineer's estimate. The Lichfield reservoir was let to Mr. Welton, of London; the Walsall reservoir to Mr. J. Boys, also of London; and the pipes and laying to Messrs. Cochrane and Co. of Dudley. The works will be commenced as speedily as possible.

Liverpool.—The pile of buildings in High-street, formerly used for the post-offices, having been purchased by the Liverpool Assurance Company, says the *Journal*, a handsome structure, of which Mr. Cockerell is to furnish the designs, will shortly, it is understood, be reared on that site.

Weston.—On the 10th inst. the schools recently erected at Weston were opened by the Bishop of Lichfield. The building consists of one room, about 60 feet long, to be used jointly by boys and girls, and divided by curtains. This opens into a class-room, furnished with a gallery. The infant school is beyond, and is adapted to the use of 100 children. There are residences for the master and mistress, slightly detached. The whole, with play-ground and gardens, occupies one acre. Mr. R. Hesketh was the architect, and the work has been executed by Mr. Jervis, of Hitchin. The entire cost of the erection was 1,800*l.* of which sum the committee of council contributed 680*l.*

Shorncliff.—The erection of the huts for the encampment progresses rapidly, under the direction of the contractors, Messrs. Myers, and Messrs. Lucas and J. Edwards. Upwards of forty are in the course of completion. The wells formerly used have been found to be nearly dry; but near the camp, at Black-rocks, an abundant supply can be obtained.

Manchester.—Various improvements are in progress in this city. The most important are the alterations in front of the Infirmary, which are being carried out under the combined efforts of the corporation and a committee appointed by the trustees of the charity. The fountain basins have been ready some time, and all the iron railings in front of Piccadilly removed. The improvement also contemplated by the extension of Portland-street to Oxford-road is in progress. The new line of street from Oxford-road commences nearly opposite the end of Chepstow-street, through the site of the timber-yard of Messrs. Hay, Nish, and M'Kean, builders: in its course it crosses the small branch of the Rochdale Canal, which will be filled up, passing the ends of Bond-street and David-street, on the site of Mr. Clegg's old saw-mill, where it joins Portland-street. There is now a clear view from Oxford-road to the bottom of Portland-street. It will be a broad street, to correspond in width to Portland-street. The Lancashire and Yorkshire Railway Company are now engaged in making extensive alterations at the Victoria station, on the Ducie-bridge side, with the view of forming a branch line of rails for further passenger station accommodation. To carry out this object it has been found necessary to erect a bridge of considerable span over the river Irk, and an arched way beneath Cheetham-hill-road. The company have also erected a large stable for the horses employed at

the station. Amongst the new buildings in course of erection in this city, is the new Public-hall, on the site of the Free-Trade-hall, in Peter-street. A large number of men are now engaged in the work, but it is not likely to be completed in less time than eighteen months. Messrs. S. and J. Watts, of Fountain-street, according to the local *Courier*, are about to erect a warehouse, of immense proportions, on a site bounded by Portland-street, Minshull-street, Silver-street, and Chorlton-street. It will have a frontage of ninety-eight yards to Portland-street, and will be one of the largest warehouses in Manchester.

Preston.—On Thursday before last, the Town-hall committee met to receive the tenders for the re-erection of the Town-hall property. There were four tenders sent in for the whole work, and several for the different branches of it. It was agreed to recommend to the council to accept Mr. Armstead, as the contractor for the whole. His estimate for the entire work was 11,715*l.* Messrs. Cooper and Tullis's for the whole was 11,723 11s. 6d.

Blackburn.—On Thursday before last, a meeting of the local Highway and General Drainage Committee was held, for the purpose of appointing a borough surveyor. The number of applications was thirty-eight. The committee reduced the number to five, as follows:—Mr. P. M. Coogan, C.E. of Liverpool; Mr. W. Smith, of Buxton; Mr. John M'Manus, of St. Helen's; Mr. John Hanney, resident engineer, of Penrith; and Mr. Hugh Wilson, formerly of Liverpool, and latterly provisional engineer at Caraccas, Venezuela, South America. The committee then reduced the number to two, viz. Mr. Wilson and Mr. Hanney. These gentlemen having been examined, it was unanimously resolved that Mr. Wilson be recommended to the council to fill the office of corporation surveyor. The committee determined to defer the appointment of an assistant-surveyor until the sanction of the council had been given to the appointment of surveyor. Mr. Wilson has been for a short time in the service of Mr. Hopwood, of Blackburn, surveyor.

Leeds.—The ceremony of laying the foundation-stone of the Arthington Extension Scheme, for supplying Leeds with water, was performed on Friday before last. The scheme will cost 40,000*l.* and is intended to convey water from the river Wharf, across the estates of Lord Harewood and Mr. W. Sheepshanks, to the Eccup reservoir of the Leeds corporation. The 3½ miles of 23-inch iron tubing have been contracted for by Messrs. Stuart, of Glasgow, for 11,200*l.* The engines for pumping the water, 2,500,000 gallons daily, are to be supplied by Messrs. Witham, of Leeds, the cost being 10,000*l.* The engine-house and buildings are undertaken by Mr. Buxton, of Leeds, at 6,000*l.*; and the land (11¼ acres) for the engine-houses and filtering beds, and the right of way across Lord Harewood's estate to the reservoir, are agreed for, the sum paid being about 7,000*l.* with 50*l.* per annum. The water will have to be lifted 275 feet. Mr. Hawksley is the engineer.

Jarrow.—The contract for the execution of Jarrow Docks, says the *Gateshead Observer*, has been let—the directors of the North-Eastern Railway having accepted the tender of Messrs. Jackson, Bean, and Gow, of London, who will execute the whole of the works. The sum is believed to be somewhere about 400,000*l.* The area of the dock is forty-eight acres, and of the basin nine. The principal entrance will be 80 feet wide, and the dock-gates 60. The gates will be wholly of malleable iron.

Glasgow.—An ironfounder has recently contracted to put up a cast-iron building in one of the principal streets of this city—to be four stories high, and to be used as shops and warehouses.

Home for Indigent Gentlewomen.—In aid of this very excellent object, Mr. Henry Leslie's oratorio will be presented, by first-rate artists, on Wednesday, the 30th, at St. Martin's-hall, the able composer himself conducting. Those of our readers who are fond of fine music may aid an excellent charity, and give themselves pleasure at the same time, by attending this performance.

TO MAKE A DRAWING-BOARD.

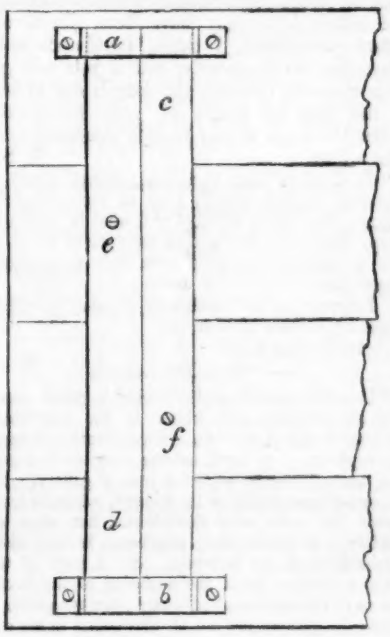
I know nothing about carpentry; but having many years ago been called upon to supply some drawing-boards for Africa, I found myself in a difficulty, as the demand was accompanied by a remark that all the boards that had been sent out or made there soon split and warped, and became useless.

As wood will shrink laterally, I set myself the task of making with my own hands a model board that should leave the wood free to contract or expand in the hottest climate, and at the same time be firmly held down to clamps of wood across the back.

To prove this board, I all but burnt it before a fire for many days; and being sure that the principle of construction was good, I ordered boards to be made like it, and was informed years after that they kept their figure perfectly, in defiance of the torrid zone.

Within the last few months I have, in like manner, been called upon to supply eight boards the sizes of large drawing-paper, upon which are now being schemed works of great importance; and as these are found to be all that can be desired as drawing-boards, probably a description of the principle upon which they are made may be worth the notice of some of the readers of the *Builder*.

The board itself is of good seasoned pine, without knots, planed smooth and true, as usual, and the joints may be either simply glued together, or they may be grooved and tongued with cross stuff. The diagram shows one end of the back of the board, and of course the other end is similar.



a and *b* are iron straps (which I made out of hoop-iron), and these are screwed to the board very securely, at about one-third inch from the edge. The straps should be smooth on the corners, so as not to cut the table.

c and *d* are two pieces of straight wood, made so as to slide rather tight through the straps, but not so tight as that they will not move freely with a little pressure.

Now, at the points *e* and *f*, the cross-pieces *c* and *d*, are screwed immovably to the board, at distances obtained by dividing the length of the pieces into three equal parts.

All this is very simple indeed, but simple as it is, we see that the board at each end is held to the cross clamps at four points; and yet it is left free to shrink or expand, just as was wanted.

I have just examined one of these eight boards, and, though made of good dry wood, its state, after only a few weeks is this:—it has shrunk half an inch in the whole width, causing the upper end of the piece *c* to obtrude, two-thirds of this half-inch, beyond the strap *a*, and the lower end to obtrude the other third beyond the strap *b*; and, in like manner, the ends of the cross-piece, *d*, obtrude beyond the straps, only in contrary directions to the other piece.

Notwithstanding all this shrinking, the board is accurately true, as proved by placing a straight edge across it in any direction, and trying it by a square. S. B. Howlett.

CHURCH-BUILDING NEWS.

Groton (*Suffolk*).—Some memorial windows are about to be placed in the church of Groton, by the Hon. R. C. Winthrop, of Massachusetts, U.S. one of the descendants of John Winthrop, the first governor of New England, who went from Groton, where his ancestors had long been lords of the soil.

Tetsworth (*Oxon*).—The architect of the rebuilding of the parish church here was Mr. John Billing, and not as stated.

Mereworth.—A monument has just been erected in the old church here, in memory of a child of Viscount Torrington. The work was executed by a London firm, and the cost estimated at 200*l.*

Bromsgrove.—In the Lickey district a new church is in course of erection, not far from the new school and the Lickey Obelisk. The chief stone of the new church was laid on Wednesday before last, by Mr. R. Clive, M.P. The site and 400*l.* were given by Lady Harriet Clive. The whole cost of the building will, it is said, be about 1,600*l.* The dimensions of the edifice are:—Nave: length, 58 feet 9 inches; width, 33 feet; height, 20 feet to wall-plate. Chancel: length, 26 feet; width, 15 feet; height, 18 feet. Aisles: 9 feet high. The materials are Alvechurch grey stone, drawn chiefly by the farmers gratuitously, and bricks for the lining. The architect is Mr. H. Day, of Worcester; the builder, Mr. G. Robinson, of Redditch. The building is in the early English style, and consists of chancel, nave, vestry, and porch. In place of tower it has at the west an ornamental gable, fitted with two bells. The walls are rubble, and the windows and dressings generally, of rubbed stone. The west end has a window divided into five lancet lights; the east a three-light window with cusped heads. The side walls of the aisles and chancel are perforated with two-light lancet windows, and buttresses between. The clerestory has five trefoil windows on each side. The roof is tiled. In the interior the nave is divided from the aisles by four pointed arches which support the clerestory, whilst the arches themselves are supported by circular columns with moulded capitals and bases. The roof is open, and the timbers are shaped and ornamentally disposed. The seats are open benches with square ends; those in the nave of deal, stained; those in the chancel, of oak. Beneath the chancel is a crypt. Near the church is a residence for the curate in charge of the district.

Devonport.—The foundation-stone of a new Congregational Church at Morice Town, Devonport, was laid on Monday before last. The church, which it is calculated will seat 580 persons, will be in the Early Decorated style, and will consist of a nave and side aisles, with entrance porch at the north; the length of building within the walls being 65 feet, and the width 44 feet. There will be a vestry at the south, from which the pulpit will be approached; and in front of the pulpit (agreeably to the rites of the denomination) will be the communion inclosure, raised 2 feet above the floor of passages, and surrounded with a rail and ornamental ironwork. A small end gallery will be provided for children. The roofs will be open, of stained red pine; the walls of dark limestone, with freestone doorways, windows, pillars, and arches. It is proposed to fill the two south windows with stained glass. Below the church there will be a large school-room, two class-rooms, rooms for the church-keepers, &c.; and adjoining the main building a parsonage will be erected to contain ten rooms. The total cost, including boundary-walls, railing, and drains, will be rather less than 2,000*l.* The architect is Mr. James Hine, of Plymouth.

Handley.—The church here, which has been nearly rebuilt, was opened on Ascension-day. The original church was built in the Norman period. The tower is of the Perpendicular date, of large proportion to the size of the church, and contains four bells. The tower archway, which was blocked up with unsightly boarding,

has been opened to the nave, bringing into view the western window. The walls of the nave have been entirely rebuilt. The roof of oak, renewed in 1611, has been preserved, by taking one side wall down, and rebuilding it before the other was disturbed. The whole of the work has been carried out in the Decorated style of church architecture. The nave has been rebuilt with faced stone inside, the roof decorated and new slated, the porch erected, the chancel new roofed and raised, new windows and door inserted, all the seats new (open), with framed ends and moulded capping, the floors new, the tower repaired, the pulpit, &c. carved, the whole, including the furnishing and architect's commission, at an expenditure of about 500*l*. The tradesmen employed resided in the neighbourhood: they were, Mr. J. Dutton, carpenter, Coddington; Mr. W. Faulkner, mason, Handley; Mr. Spencer, plumber, glazier, and painter, Tattenhall. The chairs, furniture, and fittings were by Mr. Gardner, of Chester; and the whole of the works have been carried out from designs and by direction of Mr. Harrison, of Chester, architect. A stained glass window of three lights, by Mr. Wailes, has been placed in one of the north windows, to the memory of the late Mr. S. Sandbach, erected by his widow: the subject is Samuel brought before Eli, and his ministry.

Coventry.—The bells of Trinity Church, in this city, are now in process of removal from the tower, several architects having pronounced an opinion that the bells could not be rung without endangering the tower and spire. They are about to be removed to a temporary bell-tower, to be erected in the new burial-ground adjoining the church-yard, which will allow of the whole peal being rung when recast. The groined stone roof in the church tower, which has been cut away, will now be rebuilt.

Willenhall.—The foundation-stone of the new episcopal chapel of St. Ann, in the parish of Holy Trinity, Willenhall, was laid by Miss Thorneycroft, of Wolverhampton, on Tuesday before last. The site is given, and the expense of erecting the structure guaranteed, by Mr. H. Jevons.

Leeds.—On Tuesday before last, the foundation-stone of a Presbyterian church, to be called Saint Columba's, was laid. A considerable portion of the edifice, which is situated near Woodhouse-lane, is already erected.

ENGRAVINGS AND ILLUSTRATIONS.

The Britannia-bridge.—An interesting picture by Mr. Lucas of the conference previous to the floating of one of the tubes of the Britannia-bridge, about to be engraved, is now on view at Messrs. Graves's, Pall-mall. It includes portraits of Mr. Stephenson, Mr. C. H. Wild (both good likenesses), Admiral Moorson, Mr. Latimer Clark, Mr. Edwin Clark, Mr. Frank Forster, Mr. G. P. Bidder, Mr. Hemingway, contractor for the masonry, and others concerned in the erection of the bridge. Mr. Joseph Locke, M.P.; and Mr. I. K. Brunel, friendly volunteer assistants on the occasion, are also introduced.

The Royal Gallery of Art.—The sixth part of this interesting work, now issued,* contains a characteristic picture by W. Collins, R. A. "Fisher-boys, Coast of Norfolk;" with Mr. A. Willmore's name to it as the engraver; Sir Thomas Lawrence's "Princess Amelia," very cleverly translated by R. Graves, A.R.A.; and the well-known Canaletti, "The Dogana, Venice," engraved by J. B. Allen. We know of no finer collection of Canaletti's works than that at Windsor. His industry, with due allowance for the counterfeits palmed off on an "enlightened British public," must have been continuous. Mr. S. C. Hall, in his notice of this engraving, mentions a house still standing at Richmond, "which, scarcely twenty years ago, was known to us, and to many more, as the 'Canaletti manufactory;' scores, we may almost say hundreds, of copies were circulated from its workshops; some of which reappear even now in the auction-rooms of the metropolis and of the provinces, where counterfeits are as highly 'valued as genuine copies.'" Every Canaletti in private hands may be looked at with suspicion. "The Royal Gallery of Art" will be a beautiful work.

The Seat of War in the East.—Colnaghi's "authentic series" of lithographs, from drawings taken on the spot by Mr. William Simpson, will serve to recall hereafter many of the minutest incidents of the siege. Sixteen additional views are now before us, including "Commissariat Difficulties" (the road from Balaklava!); "The Embarkation of the Sick at Balaklava;" "Sebastopol, from the 26-gun Battery;" "The Charge of the Light Cavalry on the 25th of October," which gives a very clear notion of that extraordinary act; and "A Quiet Day in the Diamond Battery, with a monster Lancaster for a play-thing."

Mulready's Vicar of Wakefield.—Mr. Van Voorst has just now issued a beautiful edition of a beautiful book, "The Vicar of Wakefield, with Thirty-two Illustrations by W. Mulready, R.A." These illustrations, on wood, are too well known to need praise. Although not amongst those who pronounced them perfect on the first appearance of the work, we must consider the series the finest work of its kind as a whole that has been produced in our times. Fine paper, good printing, and a handsome cover, concur to render this a "luxurious" edition.

* P. and D. Colnaghi and Son.

HINTS ON STYLE.

I WAS reading last Sunday an interesting memoir by the late Mr. Jay, of Bath, and some remarks of his on composition and style in preaching seemed to bear almost with equal force on Architecture and Architectural Design; and although it may have been often said before, we cannot, I think, dwell upon sound principles too frequently, and if you will give them currency through the length and breadth of the land by means of your widely read Journal,—some of the Compo decorators may take a hint. R. S.

"If we follow what is natural, though it may not render us popular, it will keep us from being ridiculous. It is better to effect well what is within our grasp, than to beckon people together to see us fall into a ditch by reaching after fruit that requires longer arms.

"Elegance is minute beauty pleasing propriety: simplicity is essential to it.

Hence Cowper's line—

——— 'Elegant as is simplicity.'

"It is the same in style as what is called chasteness in painting, and which is the opposite to exuberance and glare. An indiscriminate and usurping application of florid colours may daub a sign-post, but will not be admitted into a gallery. It is the same as gracefulness in apparel, which is inconsistent not only with slovenliness, but also with gaudery. A well-dressed gentleman is very distinguishable from an harlequin. See a lady of taste enter a garden: from the profusion of the borders she seeks an assortment of beauty: her eye guides her hand: she gathers, but not all that comes in her way: she selects, and the choice discovers her taste: she arranges, and the order equally displays it.

"The several parts aid each other by their hue and by their position: though brought together there is no crowding: though diverse, there is no confusion; though adjusted, no formality: they open and wave, and retain a natural appearance, even in this artificial state. But another runs on—gathers—and because they are flowers, thinks she can never have enough; and only leaves off, because the hand can squeeze no more: she binds it—it is a *bundle* of flowers—but the other's is a *nosegay*."

"RESTORATIONS" AND THE SOCIETY OF ANTIQUARIES.

SOME time ago Mr. Ruskin proposed that the Society of Antiquaries should undertake the management and disposal of a fund to be subscribed for the preservation of Mediæval Buildings, offering himself to contribute the annual sum of 25*l*. towards the proposed object, and expressing his belief that his friends would be likely to subscribe a considerable further amount.

Ultimately the Society undertook the management of a fund to be raised for such a purpose; and recently the council have circulated the following memorandum:—

"The numerous instances of the destruction of the character of ancient monuments which are taking place under the pretence of restoration, induce the executive committee, to which the Society of Antiquaries has entrusted the management of its 'conservation fund,' to call the special attention of the Society to the subject, in the hope that its influence may be exerted to stop, or at least moderate, the pernicious practice.

The evil is an increasing one; and it is to be feared that, unless a strong and immediate protest be made against it, the monumental remains of England will, before long, cease to exist as truthful records of the past.

Much as these monuments have necessarily suffered from time, and much as their decay is to be attributed to the neglect of their owners, the members of the committee have no hesitation in expressing their conviction that these two causes combined have inflicted less injury than the indiscreet zeal for restoration.

Though time and neglect may impair, and eventually destroy, they do not add to a building; nor do they pervert the truthfulness of monuments. Restoration may possibly, indeed, produce a good imitation of an ancient work of art; but the original is thus falsified, and in its renovated state it is no longer an example of the art of the period to which it belonged. Unfortunately, too, the more exact the imitation, the more it is adapted to mislead posterity; and even the best imitation must unavoidably impair the historical interest and artistic value of the prototype, so that, in truth, a monument restored is frequently a monument destroyed.

Did the public at large really know how imperfectly, the principle and practice of ancient art are understood, and how very few of the so-called restorations have any just pretensions to fidelity, or could they appreciate the rash presumption of those who in general recommend and undertake such work, much less would be heard of money being lavishly spent in thus perpetrating irreparable mischief with the best intentions.

The committee strongly urge that, except where restoration is called for in churches, by the requirements of Divine service, or in other cases of manifest public utility, no restoration should ever be attempted, otherwise than as the word 'restoration' may be understood in the sense of preservation from further injuries by time or negligence: they contend that anything beyond this is untrue in art, unjustifiable in taste, destructive in practice, and wholly opposed to the judgment of the best archæologists.

(Signed) STANHOPE, President.
J. Y. AKERMAN, Secretary."

AN ARTISTIC OLIO.

As the upholders of art, in whatever shape it appears, so as it be genuine, we feel we should scarcely fulfil our conditions, still less satisfy our inclinations, did we not devote a few lines of approbation to Mr. Woodin's "Olio of Oddities."

Mr. Woodin is no common artist: his sketches are neither the startling crudities of ultra-originality, nor a series of *rifacimenti* of well-known portraits, touched up and redressed to suit modern tastes; but there is a freshness of conception and vigour of execution about them which indicate undoubted ability, and effectually disarm the slightest suspicion of plagiarism.

Apart from the individual merits, more or less, of the numerous portraitures which constitute the structure of this very entertaining monologue, the number of the characters and extreme rapidity of their changes are something quite marvellous to witness.

In the space of two hours, he presents you with thirty or forty portraits, all drawn from the life, and some of them so true to their originals that the most obstinate stickler for likeness cannot fail to recognise their strong resemblance to the type whence they are derived.

The first character, "An Animated Sandwich," makes his audience as completely "at home" as himself, and proves his touch to be masterly; and his subsequent impersonations more and more illustrate the value of first impressions.

A piece of comic vocalisation introduces a "Chapter of Critics," from the sententious and ponderous Dr. Johnson to the off-hand, fragmentary, ejaculatory critic of the shilling gallery.

"Travelling and Travellers" next introduce you to Mr. Woodin's Sketch-book, a series of well-painted views of the Lakes of Cumberland. The numerous characters encountered in this tour form the staple of the entertainment, allowing no breathing time to the versatile actor, and scarcely more to the beholder.

Some accurate impersonations of a few of our best known evening entertainers conclude the performance with *éclat*. Evidence of good taste pervades the whole arrangements. The stage is separated from the audience by a refreshing mass of green rock-work, lit by coloured lamps, and the fittings are very elegant. It is, as we said before, an artistic exhibition, and as such we warmly recommend it to the patrons of art in general.

"WANTED! A WASH."—I have some small houses that I want to do up, but what am I to do to the walls? Paint is expensive: paper is also dear, easily soiled and torn, and harbours insects: colouring looks very beggarly, and rubs off. What I consider is wanted is a new material, combining in some degree the cheapness of whitewash, and the durability of paint, the following qualities being essential;—easily laid on with a stock brush, good body, bear washing, and take any cheerful tinge.

A HOLDER OF HOUSES.

ROTHERHITHE AND ITS NUISANCE.

A CORRESPONDENT, B. S. S. writes again on the subject of the large tidal ditch which divides the parishes of Rotherhithe and Bermondsey. He says it is in reality an enormous elongated cesspool, nearly a mile in length, and varying in width from 6 feet to 30 feet; is the receptacle of every description of filth and refuse, both animal and vegetable; and is as offensive to the sight as it is injurious to the health.

It is now twenty-five years since this ditch was used as a mill-stream; and since that period the mud and filth have been allowed so to accumulate that they are above the surface of the adjoining ground, and during last summer it frequently occurred that the tides were not high enough to flow into these ditches for days, so that this vast surface of putrefaction and decay lay rotting and festering, exposed to the full action of the sun, generating those poisonous gases and noxious effluvia which have destroyed so many valuable lives, and have caused such an indescribable and incredible amount of misery and suffering throughout the neighbourhood.

When the cholera raged in Rotherhithe in 1849, its first appearance was in Gilham's-court, adjoining this ditch, where it proved fatal to three persons in one house; and its ravages along its course are but too well known.

Lord Palmerston was memorialised to use his influence to get these places filled in. Mr. Rawlinson and Dr. Milroy inspected them, and were both horrified.

The cholera came, and I hope, says our correspondent, I shall never again be an eye-witness to such scenes of grief and misery as came so suddenly and unexpectedly upon these unfortunate people. The Commissioners of Sewers filled in similar ditches in Bermondsey, and why should not they do the same in this instance, and that speedily, before cholera again commits such frightful ravages as on two previous occasions?

COMPETITIONS.

Dudley.—The first premium for the Dudley Workhouse has fallen to Mr. G. B. Nicholls, of Westbromwich. The second to Messrs. Bidlake and Lovatt. The Architectural Society of Birmingham met on Friday in last week, when the Dudley workhouse business was discussed. It was considered too late, however, to do anything in the matter, but they resolved to open the society to the Midland Counties, and try by that means to counteract any future proposition of "not exceeding 4 per cent." in competitions.

Edinburgh Meadows.—We are informed that at a meeting of the committee held on Saturday last, the first premium (50*l.*) was awarded to the plan No. 8, bearing the motto "Dum Vivimus Vivamus," and the second to that marked No. 1, with the superscription "Auld Callan." Upon opening the sealed envelopes which accompanied the plans, it was found that the successful competitors were Mr. Thomas Davies, Edinburgh, and Mr. Geo. M'Ewen, gardener, Arundel Castle, Sussex.

ST. ALBAN'S ABBEY.

IN the notice of the plan of St. Alban's abbey in the *Builder*, p. 217, *ante*, it is stated that "there are remains at the extreme west end of the nave of western towers *appertaining to the Norman building.*" It is true that the foundations of the Early English work at the west end are of Roman brick: as the Norman walling throughout is of the same material, it has led to the supposition that the extreme western foundations must have been part of Abbot Paul's original plan, and that consequently the Early English portion of the nave is but a *re-edification* upon a Norman substructure. The mere presence of Roman brick discoverable below the surface at the west end hardly warrants the inference that the foundations are therefore Norman; for the adjacent city of Verulam continued to furnish this material for several centuries later, as may be seen in those portions of the church contiguous to the Lady Chapel, these being of Decorated date. An attentive examination of the Abbey Church would lead to the conclusion that the western termination of the original nave fell short of the existing one; that it was taken down during the abbacy of John de Cella; and that the Early English work was an entirely new addition —a lengthening of the old nave, in fact—by that abbot. For this supposition the following reason may be given, but it is not the only one that might be adduced. If we suppose the lines of the original Norman plan to be continued westward, they would not fall upon those of the later work at the west end: in other words, the Early English walling stands rather obliquely to the Norman. Now, although it is easy to conceive that an aberration of this nature might arise in the lengthening of a building (and several examples could be referred to in which the like sort of obliquity exists between later and more ancient work); yet, if the foundations of any separate division of a church, such as the Norman nave of St. Alban's Abbey, had been cast simultaneously, there is no apparent cause for such irregularity in the lines. If the extreme western foundations are parts of the original plan, we shall have to suppose that the Norman builders carried their walling in unbroken lines from the transept to the points at which the Early English work begins, and gave the remaining length of the plan a turn to the northward. I should be disposed to think that the Norman nave extended no farther west than one compartment beyond the last pillar of that date on the north side, and that the bricks forming the Early English foundations are the materials of the original west front, pulled down when Abbot John de Cella made his addition.

G. E. LAING.

FORM OF WROUGHT-IRON BEAMS.

INSTITUTION OF CIVIL ENGINEERS.

ON the 8th the discussion was renewed on Mr. Barton's Paper "On the Economic Distribution of Material in the Sides, or Vertical Portion, of Wrought Iron Beams." The opinions expressed were very various. Reported without the names of the speakers they would simply serve to mislead. By one speaker, after recapitulating the leading features of the paper submitted to the Royal Society by Mr. W. H. Barlow, and which had been quoted from at the last meeting, it was argued, that the actual position of the neutral axis being there established, the resistance at the outer fibre of a beam could be estimated, from the weight required to break it, when applied transversely. In cast iron, the resistance at the outer fibre was 40,000 lbs. while the tensile strength was only 17,000 lbs. A bar broken by direct tensile strain was broken without flexure; whilst a bar broken by transverse strain must first be bent.

The experiments showed, that of the 40,000 lbs. total resistance at the outer fibre, 23,000 lbs. were required to bend the beam, and 17,000 lbs. to overcome the tensile strength of the metal. In open girders the ultimate resistance was between 17,000 lbs. and 40,000 lbs. and it was found by experiment to increase as the ratio of the depth of metal to the total depth of the beam increased.

In an open girder, in which the depth of the metal was half the depth of the beam, the resistance at the outer fibre was 28,000 lbs. and the experiments traced the resistance gradually up to 40,000 lbs. in the solid beam.

In wrought iron, the resistance to flexure was less in proportion to tensile strength than in cast iron. Nevertheless it was an important element of strength, even in wrought iron; the resistance at the outer fibres in a solid beam being 50 per cent. greater than in an open girder, depending for its strength solely on the resistance to extension and compression.

Mathematicians had applied the axiom, "ut tensio sic vis," in the case of transverse strains, in which continuous fibres were unequally strained, without considering the lateral action arising from the cohesion of the particles: this, it was argued, required modification.

Drawings were exhibited of the bridge designed in 1850, by Captain Moorsom, and for which he obtained the engineering prize, from the Prussian Government, for the proposed great bridge intended to have been erected over the Rhine, at Cologne.

The bridge was intended to have been on the lattice principle and constructed of wrought iron,—with three openings, two of 600 feet span each, and one, an opening arch, of 100 feet span.

The total length of the beams was about 1,380 feet, and that of the bridge, from end to end of the arched approaches, was upwards of 2,000 feet. The width was to be 50 feet, and the soffits of the beams were to be 45 feet above the high-water line, and about 65 feet above the bottom of the river. The ultimate strength of the large beams, of 600 feet span, was calculated at 11,500 tons, distributed over the two. The quantity of metal in each of the large beams was 13,514 cubic feet of wrought iron, or about 2,865 tons, being about 4·83 tons per running foot, for a width of 50 feet.

It was contended, that this trellis bridge, would have been a more advantageous employment of the material, than if disposed as tubular beams for the same span.

The rule for calculating the strength of cast iron beams, given at the last meeting, was taken exception to, as not being so correct as the old rule, known as Professor Barlow's formula:—

7,600 constant for cast iron,
× sectional area,
× 4 times the depth,
÷ the clear span,
} all in inches,

gave the breaking weight on the centre in lbs. By this rule the breaking weight of the beams, stated to have been 26 tons, would have been 47 tons.

In reply it was stated, that the rule referred to was in effect nearly the same as that which had been given previously: both would give nearly the same results, provided the top flange was sufficiently large to act as the fulcrum upon which the remainder of the beam must be broken in tension.

Another edition of the rule referred to was,—

Total area of beam;
× Depth from top of beam to centre of gravity of the section;
× Constant number of 25;
÷ Length of bearing (in inches), gave the breaking weight on the centre, in tons, when supported at each end. This rule was approximately correct, but would be found to give sometimes too low and at others too high a result, whereas the rule given at the last meeting would be found correct for all cases.

It was contended, in closing the discussion, that the question resolved itself entirely into the relative value of the vertical middle rib, whether of the trellis form, the "Warren" truss, or the plate beam,—the top and bottom remaining the same in all cases. Practically the principal saving, in using the trellis system, must arise from the opportunity of employing merchant bars instead of plates, and in the truss, in introducing a certain quantity of cast iron; against which, independent of all other advantages, must be put the facility of construction and of being raised entire to its position possessed by the plate beam.

As to the so-called neutral axis, if by that term was meant a portion of material not performing any duty, it must be admitted that though there might be a point of reduced action, yet that all the particles in a plate beam were doing more or less duty at all times, and in that sense there was no neutral axis.

Many practical considerations, it was argued, induced the employment of the tubular plate beams, and the result had shown, on all the occasions of their use, their peculiar efficiency, especially as they had chiefly been employed in situations where it would have been impracticable to have established the scaffolding indispensable for the construction of the trellis beams; therefore any attempt to draw comparisons between the systems failed in the essential point of identity of situation and circumstances.

Miscellanea.

BRIDGEWATER CHURCH AND THE ARCHITECT'S CHARGES.—The architect's charges for the works done in the restoration of Bridgewater Church have been the subject of local animadversion, and we have been invited by the *Bridgewater Times*, and by private letters, to express an opinion on the subject. The charges amount to 570*l.* 7s. 4d. on an outlay of, according to the architect, 3,946*l.* and on the face, certainly, look larger than architects usually have the good fortune to obtain. There is this peculiarity about the matter, that the architect, by special arrangement, acted also as clerk of the works, at a weekly salary, by which means, as he sets forth, the parish were saved a large sum of money through the re-use of the old materials. There may have been other special circumstances, and we might commit an injustice if we made any adverse observations.

PROPOSED WIDENING OF HUNGERFORD-BRIDGE, AND NEW LONDON RAILWAY.—At a meeting of the Parliamentary Committee on Metropolitan Communications last week, plans were produced for the purpose of forming a tunnel railway from the London and North-Western Railway to effect a junction with Hungerford-bridge, over which it would pass on to the South-Western Railway. From this point it was proposed to carry on arches a branch line of railway to London-bridge, which would completely unite all the railways on the south side of the river with those of the north. It was proposed to widen Hungerford-bridge 50 feet, and by two girders in the centre to strengthen the bridge.

REMOVAL OF AN OLD MANSION IN THE MARKET-PLACE AT PRESTON.—Almost the last relic in Preston of a bygone age is now being rapidly dismantled. It is the last of a cluster, built in the reign of the first Charles, and bearing the date 1629. They were wooden ones, known by the name of "postern pafnted," and rose in successive tiers of curiously carved projections, that made each house appear like the stern of a modern ship of the line. The various projections were supported by grotesque figures, carved *in alto*. Many of the houses facing Cheapside, Preston, and connected with these buildings, were after the same style, and had points supported by wooden maintainers, under which the old dames of Preston were wont to spin linen with their distaffs.

THE IRON TRADE.—Collapse has entirely superseded the past high-price fever in this trade. Depression and heavy failures are the chief subjects of talk in the midland districts of the trade; and in South Wales also many of the works are said to be making iron at a loss.

ANCIENT OBELISK OR CROSS IN LEEK CHURCHYARD.—At the last "Chapter of the Order of Rosicrucians" (a society of antiquarians in Manchester), one of the members gave an oral communication on the subject of a reputed Danish and mortuary cross, in the churchyard of Leek, in Staffordshire. This stone was described, and a drawing of it compared with others in Staffordshire and Cheshire, especially Clulow Cross, near Winkle; a cross between Upton and Fallibroome; a similar cross in the yard of the old (fourteenth century) grange of the Monks of Combermere Abbey, at Winkle; the Bow Stones near Lyme Park; and the Jordan Law Crosses, now deposited in the chapel at Lyme Hall. The chief features of resemblance in these various old obelisks (for they have no cross-arms, like the Calvary cross, but are simply pillars of stone) are, 1st, that at about two-thirds of their total height, they are encircled by a fillet; 2nd, that they have the upper third squared; and, 3rd, that those (too few) which do remain in their entirety, like the Leek cross, have a small ornamental head, like the pomegranate terminal of church stalls and seats. The opinion of the speaker was, that the cross at Leek was neither Danish nor Saxon (as some had supposed from its rope or chain tracery), but Norman. He believed these "crosses" chiefly (perhaps all) to be mere boundary stones, erected by the monks of Combermere and other religious houses, to indicate the extent and limits of their lands.

WHITE LEAD OBTAINED BY PRECIPITATION.—Mr. Richard Baker, of Newark, New Jersey, has patented an improved method of producing the white carbonate of lead of commerce, consisting of a combined arrangement of apparatus, constructed so as to produce the carbonate by precipitation, more expeditiously and economically than by the usual methods. The apparatus consists in connecting with an air-pump a series of a great number of distribution pipes, descending vertically from a main horizontal tube, and passing down through the head of the precipitating vessel into a solution of sub-acetate of lead,—one pipe at least for every square foot of surface of the top of the vessel, thereby traversing the solution with a great number of small jets of carbonic acid gas, causing a rapid decomposition of the sub-acetate in solution, and a deposition of carbonate of lead, and as the vertical tubes cannot choke up with the ponderous precipitate, a constant blast is secured.

WATERPROOF MINERAL PAINT.—A peculiar substance was, a few years since, discovered in the Bridgewater Mountains, New Jersey (U.S.), composed of silica, alumina, and peroxide of iron, in chemical combination, which is stated by the proprietors to form a valuable and perfectly fire and water-proof mineral paint, and has recently been introduced into England. Its properties are said to be adhesiveness, flexibility, and great durability, being an effectual protection against rain, sea-water, and damp, becoming, after a few months' exposure, hard and lasting as stone, and perfectly fire-proof, its dark red colour never changing, even in the hottest climate, and neither cracking, blistering, nor decaying. It is said to require a smaller quantity of oil, too, than other paint, to cover well, work easily, and emit no unhealthy effluvium.

ORIGINALITY IN ARCHITECTURE.—The regret expressed by yourself and your correspondent, Mr. Tarbuck, respecting the present state of architecture, may be almost as deeply appreciated by your non-professional as by your professional readers; and we, who want to be taught by the earnest and the truthful, feel that we must look to your pages for the visible action of that spirit which is to teach. But what are the errors which have to be swept away before truth can come? Each department of life possesses its own Augean stable. If we commence with that error which inspired the Egyptian, the Greek, the Roman, in the erection of their stately temples, where, we may ask, shall we find it now? Fortunately for the future, past errors are being swept away; and we cannot resuscitate the dry bones of dead religions; and the time is coming when metaphysics and philosophy will have completed their work for the present cycle, and when architects will be duly inspired with their truthful teaching. Then, and not till then, shall we have architects worthy to be compared with those of Egypt, Greece, and Rome. In domestic architecture no improvement of any importance can take place till those who design and build are more fully impressed with the importance of their profession in relation to the health and lives of their fellow-men. But this age may claim to itself a new mode of architecture for public buildings, although it be not applicable to many purposes, and the same kind of genius which inspired it would, if it had scope, suggest more graceful structures, for the more permanent wants of the time. Let architects continue to write and talk and then the public may hope to see some of the good results from such as your obedient servant,

TYRO.

DOVER HARBOUR AND THE NEW CONCRETE MACHINE.—In connection with the works for the harbour of refuge and new pier at Dover, a correspondent informs us that a machine has been made by Messrs. Gilbert, for Messrs. Lee, the contractors, which mixes a large quantity of concrete almost instantaneously. It consists of an iron cistern, which is half-filled overhead from a hopper: the cistern revolves diagonally on an iron shaft, and the contents are then shot out ready mixed.

THE SEWER QUESTION AT BRECON.—The Local Board of Health at Brecon, after a long and learned discussion, have come to the conclusion that there is nothing like an open sewer for sanitary welfare, a conclusion up to which they have, in fact, resolved practically to act, inasmuch as they have decided that an offensive open sewer called the Madrel shall *not* be covered over, as covered sewers concentrate the offensive effluvia, and render them more pernicious. It seems pretty clear that the Brecon sanitarians calculate discreetly on stagnation in their sewers; but we fear that even then they have overlooked the slight circumstance that the summer sun (or even sometimes the winter one) beaming all along an open sewer will convert it into something scarcely so delicious as a bed of roses. As it is, we should like to know whether the Central Board of Health has given its sanction to the new principle in sanitary science thus evolved by certain of the natives of that picturesque province to which the president of the Board belongs, and as it were under his very nose, considering the proximity of Brecon to Llanover. It is but justice to the minority of the Brecon board to state that such a minority has an actual existence, although the medical authority who voted for the open sewer plainly does not belong to it.

THE PARIS LODGING-HOUSES.—From a letter in "The Labourer's Friend," written by Mr. G. Clark, of Paris, director of an Anglo-French Association for the erection of model lodging-houses in Paris, under the patronage of the French Government, it appears that the habit of unmarried French workmen of depending on their landlords for cooking their victuals, together with the desirability of adhering as much as possible to such habits, where otherwise unobjectionable, suggested to Mr. Clark the advantage of so disposing of the model lodging-houses, that, in place of paid managers and servants, occupying unrentable spaces, there would be one chief tenant, paying rent for the street floor as a shop suitable for a "traiteur," a "restaurant," or a coffee-housekeeper, baker, or other tradesman, depending much on the consumption of the working-classes, and who should engage to provide cooked meals for the other tenants, besides carrying on a more general business. Thus, the lodgers and the ground-floor tenant are mutually useful, while otherwise independent of each other, and the speculation is not burdened with expenses of management, as in salaries for housekeepers and servants, or curtailed in available profits from rents for the spaces so occupied. Mr. Clark suggests the adoption of some such plan in London, especially with the street floor let as a coffee-house to the principal tenant, as affording the speculation a better prospect of success in a good return on the capital laid out in the erection.

NEW HEATING APPARATUS, BY MEANS OF FLUIDS.—General H. Dembinski, of Paris, has patented in this country, as well as in France and Belgium, new arrangements for heating rooms, large buildings, and hothouses, and for cooking and other purposes. The general principle is such an arrangement of fluted or plain tubes, with tufts of wire passing through them, to be heated in any convenient manner, as, while hot, can have water continually to flow over or through them. This heated surface being extensive, in proportion to the water to be heated, keeps the latter in a constant state of ebullition, and by passing it in that state through other pipes, so as to re-circulate over the heated surface, great economy of fuel is estimated to be the result. Ornamental vases, pillars, plinths, and other architectural and fanciful designs, may be made the heating medium in halls, staircases, single apartments, &c. One peculiar arrangement is adapted to camp purposes, combining a heating apparatus with a large cauldron for cooking the mess for the troops.

SMOKELESS FURNACE.—In a steam-boiler furnace in action, on a 25-horse power boiler, at granaries and flour-mills at Winchester-wharf, Southwark, every alternate bar is so connected with a cross-piece at each end as to form one entire moveable frame, which is connected by gearing with the motive-power. The motion given to it is angular. What are termed the stationary bars are not fixed as usual, but hung so as to balance the vibrating frame with the load of fuel which it has to move. The fuel is fed through a hopper and regulating incline plane, and the whole is self-acting, requiring, it is said, but little attention from the stoker. The saving of fuel is estimated at about 10 per cent.

SCOTTISH SOCIETY OF ANTIQUARIES. — At th seventh meeting of the session, held at Edinburgh, on Monday before last, Mr. A. H. Rhind read a paper on "British Primeval Antiquities; their present Treatment and their real Claims." Mr. Rhind concluded his paper by urging on the society the propriety of impressing on landowners the value of existing remains. Mr. Stuart entered into details as to the destruction going on, more especially of the sculptured stone monuments of Scotland. It was resolved that steps be taken for impressing on landowners the desirableness of taking better care of these interesting remains.

SAND DRAINAGE.—By observing and imitating nature, says a Fife correspondent of the Notts *Guardian*, a drain can be formed cheaply to last for ever, that roots of any description shall not choke. Where natural drainage takes place it is by seams of sand or gravel: now, by cutting a drain in the usual fashion, and filling in six or eight inches of pure sand, river sand if possible, and covering in over this, you have a drain that is permanent—in fact, everlasting if undisturbed; for although tree or other roots may run through it, the sand can never be so displaced as to affect the drainage in any sensible degree. I have often wondered why sand-drainage is never used, being so cheap and so permanent.

RANCID OIL.—Dr. Griseler, a French gentleman, has discovered that by adding a few drops of nitric ether (known as spirits of nitre) to the most rancid oils, all the disagreeable smell is removed, and that by afterwards warming the oil, to separate the spirit from it, it becomes as clear and limpid as though it had never been otherwise than sweet. He says that a few drops of ether in a bottle of oil will prevent it from ever becoming rancid. The ether is based on hydrogen, which doubtless neutralizes the oxygen to which the rancidity of the oil may be attributed. Would not naphtha or turpentine act in a similar way on rancid oil?

IRON BEAMS.—With reference to a question raised during the recent discussion on wrought-iron beams, I have tried some experiments, and find that on the upper surface of a loaded beam the longitudinal lines are *compressed*, and the transverse lines *extended*: at the same time on the under surface the longitudinal lines are *extended*, and the transverse lines *compressed*. In my experiments the beam was loaded on the upper side, and the vertical lines became *compressed*. It is probable that in a compound or trussed and framed beam, loaded on the *lower* part, the vertical lines may be subject to extension and diagonal lines to compression.—ROBT. SHEPPARD.

CHLORIDE OF LIME.—The "Analytical Chemist" who lately addressed us on the subject of "home-made chloride of lime," writes again to state that the following mixture will be found about the best for disinfecting purposes:—Commercial chloride of lime, 4 lbs.; peroxide of manganese, 1 lb.; powdered charcoal, 5 lbs. The whole cost of 10 lbs. of this mixture will, he says, be 1s. 3d. retail. In cases of cholera, fever, &c. he fills, with this mixture, a large flower-pot (the hole stopped with the porous plaster of Paris), and sets it in a vessel containing vinegar and water. In reference to his previous communications, our correspondent states that in practice he finds that the chloride of sodium and lime of the "home-made chloride," mixed with water in the way indicated, do not even produce chloride of calcium until the lime gradually absorbs carbonic acid from the air.

"HIGHBURY,—RETURN."—Dear Mr. Editor,—I beg to call your attention to the bad policy on the part of the directors of the North London Railway, who have ceased issuing return day tickets on this line since the 1st of April. The sixpenny return tickets for the short journeys—say from Hackney to Highbury—were all very well, but the extra twopence few will pay, but will prefer either walking one way or taking the omnibus. There are many who have taken houses on this line, and travel to Fenchurch-street and back daily: the extra twopence a day would be 2*l.* 12s. 2d. a year, which a poor clerk with a family could ill afford; and, moreover, it is well known to all that this line of rail has paid better than any in London. Myself and many of my friends, not liking to be imposed upon, now walk twice a week from Hackney to Highbury: no doubt many do the same, and the directors will find, if they have not found it already, that they will lose instead of gain by the change.

MARIE.

TENDERS

For a House in Surbiton Park, Kingston-on-Thames, for Wm. Watkins, Esq.; Mr. W. Harriss, architect:—

Hayward and Nixon (London ...	£7,997	0	0
Patman (Kingston)	7,979	0	0
Nye (Ealing).....	7,363	0	0
Fisher (London)	7,350	0	0
Burton (London).....	6,146	0	0